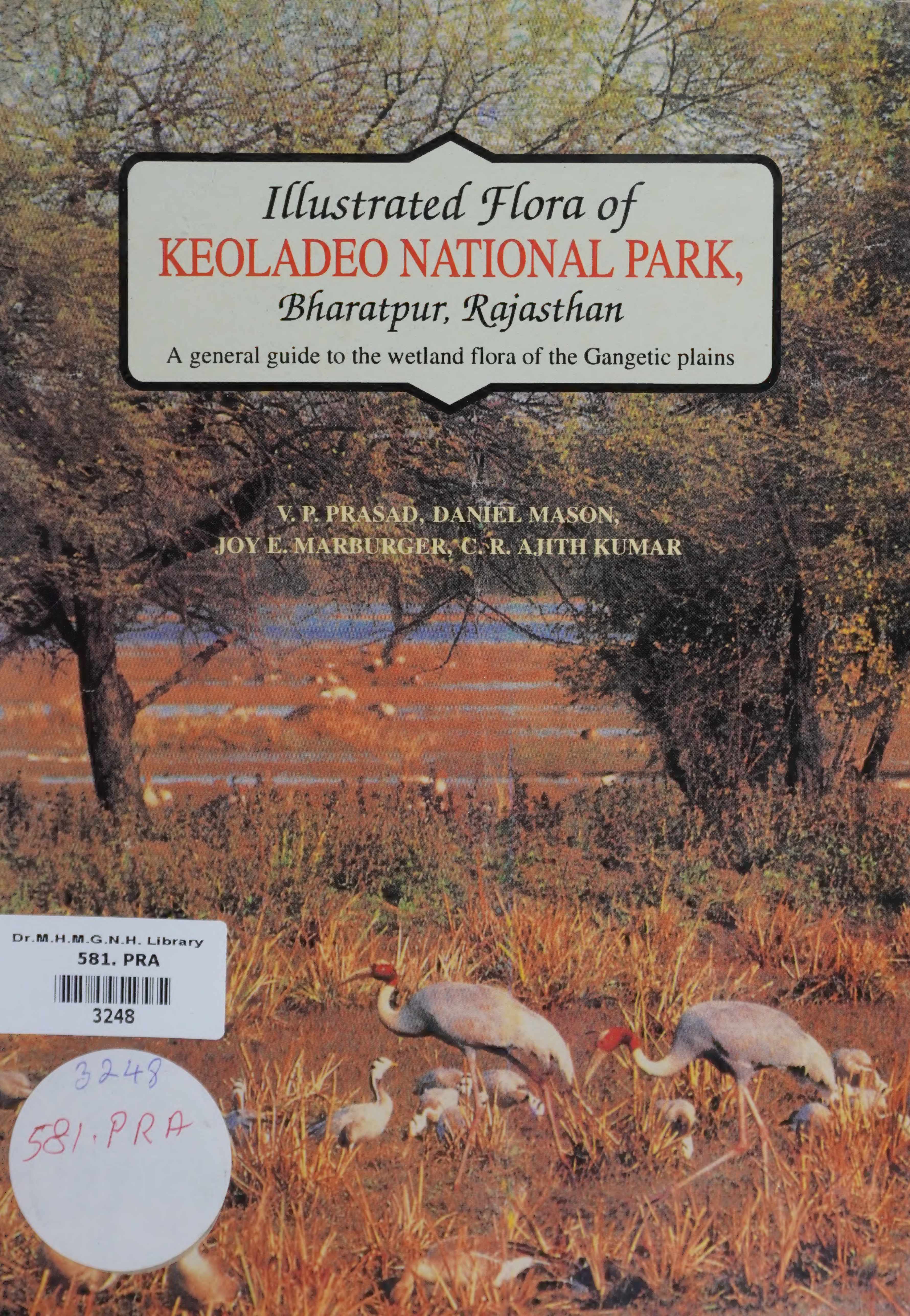

Illustrated Flora of
KEOLADEO NATIONAL PARK,
Bharatpur, Rajasthan

A general guide to the wetland flora of the Gangetic plains

V. P. PRASAD, DANIEL MASON,
JOY E. MARBURGER, C. R. AJITH KUMAR

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ILLUSTRATED FLORA OF KEOLADEO NATIONAL PARK, BHARATPUR, RAJASTHAN

A general guide to the wetland flora of the Gangetic plains

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Botanical Survey of India, Pune, India

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Wetlands Research Inc., Illinois, USA

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Oxford University Press, Walton Street, Oxford OX2 6DP

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ISBN 0 19 564227 9

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PRINTED BY BRO. LEO AT ST. FRANCIS INDUSTRIAL TRAINING INSTITUTE, MOUNT POINSUR, BORIVLI (W), MUMBAI 400 103, PUBLISHED BY THE BOMBAY NATURAL HISTORY SOCIETY AND CO-PUBLISHED BY MANZAR KHAN, OXFORD UNIVERSITY PRESS, OXFORD HOUSE, APOLLO BUNDER, MUMBAI 400 039.

FOREWORD

Keoladeo National Park at Bharatpur, Rajasthan, is one of the best waterfowl reserves in the world. It is interesting that this man-made wetland is the only resort in India for Siberian Crane, which is one of the most endangered species. Moreover, recently the park has been listed as one of the World Heritage Sites.

Although the area is just 29 sq.km., a mosaic of vegetation types are found in this park. A total number of 372 species are illustrated in this flora with local names, a brief description, habitat type, phenological data and references to relevant regional flora are given.

As the common man is becoming more and more aware of environmental problems, his interest to know the flora and fauna has also increased. Hence there is a popular demand for books on flora and fauna in a simple format. The Illustrated Flora of Keoladeo National Park serves this purpose as it is designed in a manner which enables even the layman to identify the species by matching the plants with the illustrations. Keys to families, genera and species are also given, which will be helpful to students, teachers and professional botanists

I hope this Flora will be useful to tourists and also to students, teachers, foresters and botanists visiting this park and other similar places in the Gangetic Plains.

Dr. P K Hajra
Director,
Botanical Survey of India,
Calcutta.

PREFACE

The "Illustrated Flora of Keoladeo National Park, Bharatpur, Rajasthan" is meant to cater to the needs of naturalists, students and also professionals who visit the Park. The illustrations alone will be sufficient to identify many of the species. Each illustration is followed by a brief description showing the habitat, flowering and fruiting periods and local names. All this information, along with the habit sketch of the plant, will be an added advantage to a non-botanist to identify the species. Keys to families, genera and species are also given. The family key was made by dividing all the families into four major groups based on the habitat and habit of the species. Probably this is the first time such a key is used in Indian flora and we hope it will have wider acceptance as it is easy to use. The key to species is only for those identified from the Park. A glossary of taxonomic terms is also given in the flora.

Although the flora is of a very small area, the number of species present is very high, showing the species richness and diversity of plants inside the Park. This is mainly due to the mosaic of varied habitats found in the Park. As fresh water wetlands have many similarities, especially those of a particular region, their flora also have many common species. Hence, this book would be of great help in the identification of most of the wetland species, especially of the Indogangetic plains.

V. P. Prasad
Daniel Mason
Joy E. Marburger
C. R. Ajith Kumar

ACKNOWLEDGEMENTS

The "Illustrated Flora of Keoladeo National Park, Bharatpur, Rajasthan" is an offshoot of the long-term ecological studies conducted by the Bombay Natural History Society, sponsored jointly by the US Fish and Wildlife Service and Ministry of Environment and Forests, Government of India, and mainly of a project carried out by the scientists from the Iowa State University, USA. This particular piece of work is an outcome of a collaborative project of the two organizations. In connection with the publication of this book we express our sincere thanks to :

Dr. V. S. Vijayan, the then project Scientist of the BNHS Ecological Research Centre, Bharatpur, presently the Director of the Sálim Ali Centre for Ornithology and Natural History, Coimbatore for his constant encouragement and effort toward the publication of this book.

Dr. N. P. Balakrishnan, Ex-Joint Director, Botanical Survey of India, Southern Circle, Coimbatore, for carefully going through the manuscript.

Mr. David Ferguson and Dr. Neil B. Armantrout, US Fish and Wildlife Service, USA, Prof. P. V. Bole, Ex-President, Mr. J. C. Daniel and Dr. Jay Samant, Ex-Directors, Mr. M. R. Almeida, Executive Committee Member, Dr. Renee Borges, Dr. Y. Nageswara Rao, Dr. Vibhu Prakash, Dr. B. F. Chhapgar, Dr Ranjit Manakadan, Mr. Asad Akhtar, all of the Bombay Natural History Society, Dr. A. G. Van der Valk, Iowa State University, USA, Dr. P. A. Azeez and Dr. Lalitha Vijayan, Principal Scientists and Dr. N. K. Ramachandran, Research Associate, Sálim Ali Centre for Ornithology and Natural History, Coimbatore, and Dr. Gayatri Ugra, Publications Officer, and Mr. J. P. K. Menon, BNHS, for their interest in publishing this Flora.

Mr. V. D. Sharma, Chief Wildlife Warden, Rajasthan and Deputy Chief Wildlife Wardens serving in Keoladeo National Park, Bharatpur, during our study period, for permitting us to work in the Park and also for their encouragement.

Mr. Mohanan Malakkattu, typist of BNHS Ecological Research Centre, Bharatpur, for typing the entire manuscript and Ashwath Graphics, Solapur, for typesetting the book.

We are particularly grateful to the US Fish and Wildlife Service for their assistance in the distribution of the book which made its publication possible.

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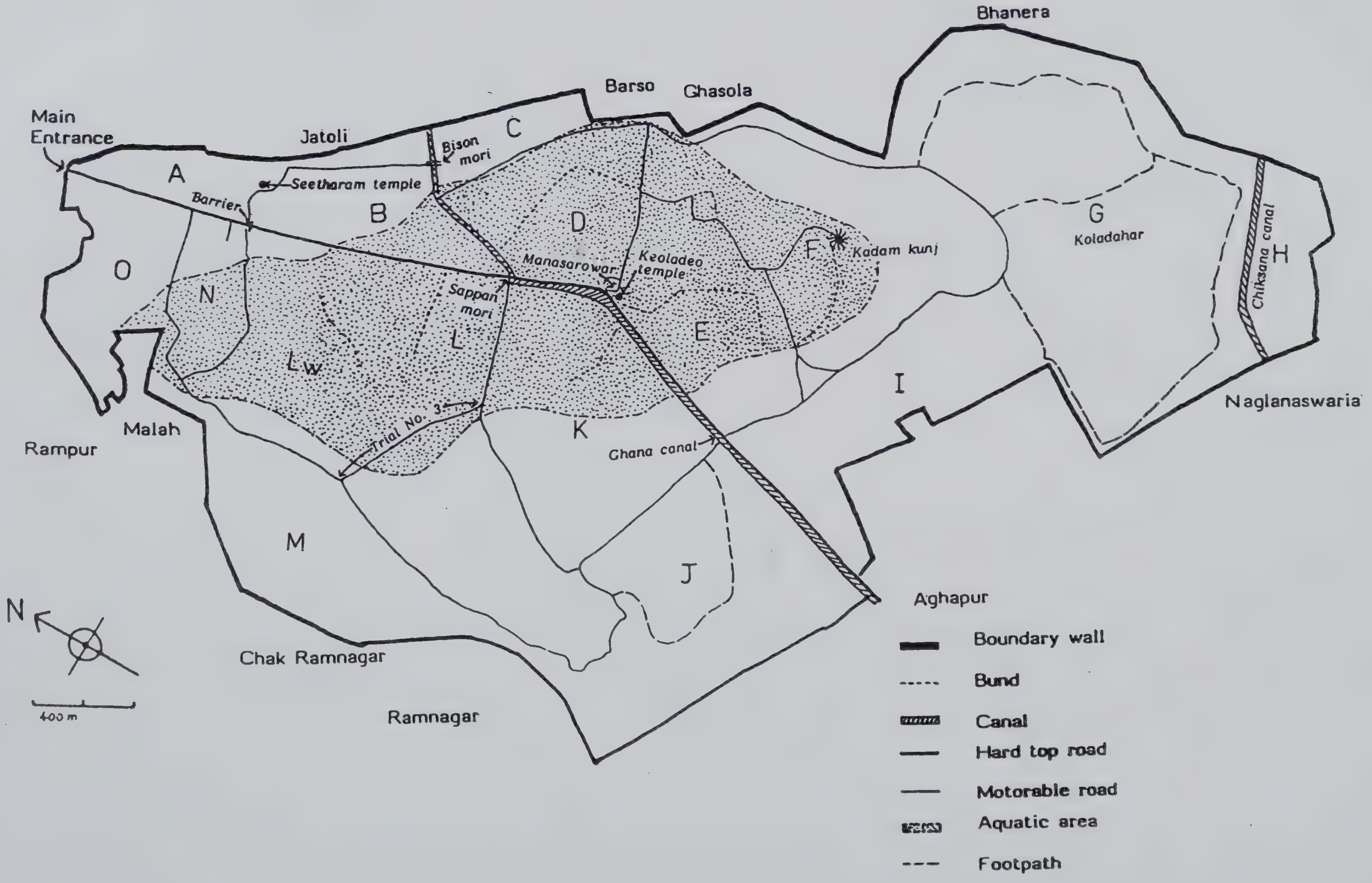
MAP OF THE PARK WITH VILLAGES AROUND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Jatoli
Barso
Ghasola
Bhanera
Naglanaswaria
Aghapur
Ramnagar
Chak Ramnagar
Rampur
Malah
A
B
C
D
E
F
G
H
I
J
K
L
Lw
M
N
O
Barrier
Seetharam temple
Bison mori
Manasarowar
Keoladeo temple
Sappan mori
Kadam kunj
Koladahar
Chiksana canal
Ghana canal
Trial No. 3
N
400 m
Boundary wall
Bund
Canal
Hard top road
Motorable road
Aquatic area
Footpath

INTRODUCTION

Keoladeo National Park, Bharatpur, popularly known as Bharatpur Ghana Bird Sanctuary, is one of the best waterfowl reserves in the world. Recently it has been listed as a "World Heritage Site". The incredibly large congregation of migratory waterfowl during winter from the Palaearctic region, the massive number of colonial fish-eating birds in large heronries on trees in the park during the autumn, and the presence of the western population of the Siberian crane which is on the brink of extinction, are only a few of the important features of this Park.

Although the Park is known mainly for its varied avifauna (approximately 375 species), it also has a very diverse ichthyological, herpetological and mammalian fauna.

One of the unique features of the wetland ecosystem of the Keoladeo National Park is its origin from a natural depression which was an evanescent rainfed wetland. The construction of Ajanbund, a temporary reservoir, about a kilometre from the present border of the park, some 250 years ago, and the subsequent flooding of the area, marked the beginning of human involvement in the conversion of this natural depression into a permanent waterfowl reserve. Subsequently, several earthen bunds and sluice gates were constructed to contain and regulate the water level.

The water inside the Park, drawn through a canal from Ajanbund during monsoon, gradually recedes and the Park dries up in May-June, leaving only some pools in the deeper areas. These pools which teem with fish attract flocks of fish-eating birds of different species. Despite this, a large number of fish die in the drying pools and on which scavengers feast. Still, many dead fish are left to decompose. Turtles become vulnerable to predation during this period, although many aestivate and some take refuge in deeper pools such as Manasarovar.

The monsoon breaks towards the end of June or the beginning of July. The seeds which were dormant through the summer, germinate; the rhizomes and tubers sprout. As water flows in from Ajanbund, millions of fry are drawn in and the Park once again teems with life. Some of the adult fish which survive the summer in deeper pools begin to breed. Most of the heronry birds also commence nesting and complete it by October. Resident ducks which begin nesting at the onset of monsoon bring out their downy chicks. The migratory waterfowl begin to arrive from mid-September and their number reaches a peak in December-January. The return migration of the birds to their breeding grounds begins in February and by mid-March most of them leave. Water recedes gradually and the cycle is repeated.

History

The system appears to have had its beginning some time between 1726-1763, when Ajanbund was constructed by Suraj Mal, the then ruler of the erstwhile princely State of Bharatpur (Gasquire 1927, Panday 1979).

The present National Park area of Bharatpur was then a flat terrain with a depression towards the middle. This depression used to be inundated during monsoon by rain water which encouraged the growth of aquatic vegetation. Migratory waterfowl were attracted to this temporary pool, but they could not remain for long as it dried up very fast. Hence, water was brought in from Ajanbund through a canal, called Ghana Canal, and contained inside the present Park area by means of earthen dykes. Vegetational changes that followed altered the habitat which became ideal for waterfowl. Along with the water millions of fry also entered the Park attracting a variety of fish-eating colonial birds for nesting. Therefore, water management which was initiated between 1726 and 1763 was the starting point of the formation of the present National Park at Bharatpur.

The entire Park area belonged to the rulers of the princely State of Bharatpur till the area was declared as a bird sanctuary in 1956. The main objectives of the then rulers in converting the evanescent, rainfed wetland into a permanent waterfowl reserve were sport hunting, protecting the "sacred" cow from hostile farmers as the cow often raided agricultural crops, providing grazing land for buffaloes, and for protecting Bharatpur town from deluges which occurred frequently in those days.

The Park passed through a very critical period immediately after Independence in 1947, as there was a popular clamour to convert the refuge into agricultural land. However, the Bombay Natural History Society through the efforts of Dr Sálim Ali, could manage to impress upon the then Prime Minister of India, Jawaharlal Nehru, and the erstwhile Maharaja of Bharatpur the need for declaring the refuge as a bird sanctuary. This effort of Dr Sálim Ali and the determined, timely action of the Forest Department of Rajasthan led to the declaration of the area as a bird sanctuary in 1956. Subsequently in 1980, it was raised to the status of a National Park.

Locality, area and topography

Keoladeo National Park, situated between 27° 7.6' to 27° 12.2' N and 77° 29.5' to 77° 33.2' E is two kilometres southeast of Bharatpur city, 38 km southwest of Mathura and 50 km west of Agra. It is midway between Delhi and Jaipur, some 180 km from each.

The total area of the Park is about 29 sq. km. It is flat with a gentle slope towards the centre, forming a depression, the total area of which is about 8.5 sq. km. This is the main submersible area of the Park. The average elevation of the area is about 174 metres. The submersible area has been divided into various unequal compartments by means of dykes (Fig.1). The bottom of the compartment is generally flat, except a narrow stretch alongside each dyke, and a still narrower stretch around each mound where it is deeper owing to the removal of mud for constructing dykes and mounds. Occasionally some ditches of varying sizes occur in the rest of the area.

A masonry wall around the border separates the Park from surrounding agricultural fields. There are 18 villages around the Park. Soil in most parts of the Park is thick alluvial; scattered saline patches are also present, especially in the drier areas.

Climate

Bharatpur experiences extreme climatic conditions. The temperature varies from 0.5 to 50°C; the minimum being in January and the maximum in May-June. Summer, monsoon and winter are distinct. Rainfall occurs through the southwest monsoon, mainly during July-August and the average rainfall in the area for the past 100 years is 655 mm. However, there is a decreasing tendency as the average for the last decade was only 496 mm.

Main source of water

The main source of water to the Park is a temporary reservoir, namely Ajanbund, situated 500 m southwest of the present border of the Park. Ajanbund receives water from the rivers Gambhir and Banganga. However, in recent years Banganga did not contribute much water to Ajanbund and the Park had to pass through several spells of drought.

The water is retained in Ajanbund only for two months; it is then drained off and the area is used for agriculture. Water from Ajanbund is taken to the Park through the Ghana Canal and it is then let into various compartments by means of sluice gates.

Vegetation

Floristic elements and vegetation series of Rajasthan have been discussed in detail by Meher-Homji (1970) and most recently by Puri *et al.* (1983). Thevegetation of the area is a mixture of xerophytic and semi-xerophytic species consisting predominantly of *Acacia nilotica, Prosopis cineraria, Salvadora oleoides, Capparis decidua* and *C. sepiaria.* However, *Acacia catechu* and *Acacia pendula,* typical of Bharatpur area (Meher-Homji 1970), are conspicuous by their absence.

The Flora of the Park has been studied extensively by Prasad (1988, 1989) and Prasad *et al.* (1991). The Park although tiny, just 29 sq. km. in extent, has a mosaic of vegetation types. The physiognomic types recognized are forest, woodland, scrub woodland, savanna woodland, tree savanna, shrub savanna, low grassland with scattered trees and shrubs, plantations and wetlands (Perennou and Ramesh, 1987). Each of the major types is further divided into subdivisions according to dominant or characteristic species and based on the density of trees or thickets.

For the purpose of convenience and considering the type of users of the book, an easier classification is given.

Wetland Vegetation

The wetlands of Keoladeo National Park have 90 species of flowering plants, of which *Paspalum distichum,* a perennial grass, is the most dominant species (Prasad, 1988). These are classified as follows:

(a) Free floating *(Spirodela polyrhiza, Lemna perpusilla, Eichhornia crassipes)*
(b) Rooted with floating leaves *(Nymphaea pubescens, N. nouchali, Nymphoides cristatum)*
(c) Unanchored submerged *(Ceratophyllum demersum, Utricularia aurea, U. stellaris)*
(d) Rooted submerged *(Hydrilla verticillata, Najas minor, Potamogeton crispus)*
(e) Emergent, amphibious *(Eleocharis dulcis, Scirpus littoralis, Ipomoea aquatica)*
(f) Marshland plants *(Caesulia axillaris, Eclipta prostrata, Echinochloa colonum)*

The chief plant associations in the wetland are :

1. **Hydrilla - Najas**

Hydrilla verticillata, Najas minor, Potamogeton nodosus and *Nymphaea pubescens* are the main species forming this association. This is confined to the deepest areas with open water and loose muddy bottom. Water remains here even during summer forming a shallow pool when the rest of the area is dry. Common birds feeding in this habitat are coot, pochards, pelicans, cormorants and darter.

2. **Spirodela - Wolffia**

Plants such as *Spirodela polyrhiza, Wolffia globosa, Lemna perpusilla* and *Azolla pinnata* dominate this association. These free floating species usually occur in open water areas and keep drifting along with the wind. Common birds in this habitat are cotton teal and coot.

3. **Paspalum - Ipomoea**

Paspalum distichum, Ipomoea aquatica, Pseudoraphis spinescens, Scirpus littoralis, Utricularia exoleta are the main species forming this association, mostly in comparatively shallow water areas and in moist soil. Extensive patches exclusively of *Paspalum distichum* occur in this area. Common birds of these areas are garganey teal, purple moorhen, egrets, herons and geese.

4. **Corchorus - Melochia**

Corchorus olitorius, C. capsularis, Melochia corchorifolia, Aeschynomene indica, Scirpus tuberosus, and *Paspalum distichum* are the dominant species of this association. It is found usually near the dykes or areas bordering the wetlands and upland, the latter being the major habitat for the Siberian crane.

Vegetation of the land area is classified as follows :

Mitragyna patch

A few patches exclusively of matured *Mitragyna parvifolia* and at times with a few scattered shrubs occur in the Park. Ground cover is almost absent, but certain seasonal herbs are found.

Woodland

Woodlands are dominated by *Acacia nilotica* which usually forms the upper tree layer and small trees or larger shrubs such as *Ziziphus mauritiana* and *Salvadora persica* form the under-story. A few climbers such as *Wattakaka volubilis* and *Cryptostegia grandiflora* also occur. The ground cover of grasses and herbaceous species is usually dominated by *Cynodon dactylon.* Animals which frequent this area are nilgai, spotted deer and jackal.

Scrub woodland

In the scrub woodland the upper canopy is not continuous and is usually formed by trees such as *Mitragyna parvifolia, Acacia nilotica* and *Syzygium cumini.* The undergrowth is prominent and formed usually by thorny shrubs or small trees dominated by *Salvadora persica, Capparis sepiaria* and *Prosopis juliflora.* Ground cover is sparse and only a few seasonal herbs are found.

Savanna and other grassland

Savanna type of vegetation is formed mainly by grasses such as *Vetiveria zizanioides* and *Desmostachya bipinnata* mostly in Koladehar area. Trees and shrubs usually found in savanna are *Prosopis cineraria, Acacia nilotica, A. leucophloea, Ziziphus mauritiana* and *Salvadora persica.* Certain wetland areas are also bordered by this kind of vegetation.

Low grassland, mainly of *Sporobolus helvolus* and *Cynodon dactylon,* occurs in some parts of the park with a few scattered trees and shrubs such as *Acacia nilotica, Prosopis cineraria, Salvadora persica* and *Kirganelia reticulata.*

Plantation

Acacia nilotica was raised on either side of the dykes in many parts of the wetland as well as in the land area. In the aquatic area it was raised on earthen mounds mainly in rows and are being used by the colonial breeding fish-eating birds for nesting.

Prosopis juliflora was planted in small patches but it has become so thick that attempts have been made to remove it.

Apart from the above, the Park has several saline sandy patches where scattered growth of *Salvadora oleoides, Salvadora persica* and *Prosopis juliflora* is seen. Ground cover is almost absent as it has only sparse growth of *Salsola baryosma, Suaeda fruticosa* and *Sporobolus ioclados.*

The flora of the Park consists of 375 species of Angiosperms and of these 370 are depicted with illustrations in this book.

Fauna

The Keoladeo National Park is rich in its fauna. It has more than 350 species of birds, 27 mammals, 13 reptiles, 7 amphibians and 40 fishes. (Vijayan 1987, Kumar and Vijayan 1988, Vijayan 1991).

The most endangered of all the larger vertebrates of the Park is the Siberian crane *(Grus leucogeranus)*. The western population which migrates to India plummeted to 5 in 1992-93 from 200 in 1965. The drastic decline of this magnificent crane is attributed mainly to loss during migration due to various reasons and changes in the habitats. Maintenance of the vegetative community with a preponderance of *Scirpus tuberosus* with water of less than 40 cm depth provides ideal habitat conditions for the species.

Management of the Park

The vital factors which govern the ecology of Keoladeo National Park are: (1) the quantum and time of release of water to the Park, (2) number of fry getting into the Park along with the water, and (3) management of aquatic vegetation.

Of late, because of the erratic monsoons, and increased diversion of water from the two rivers supplying the Park frequent spells of drought have been experienced. Therefore, it is imperative to locate an alternative permanent source of water for the Park.

The number of fry entering the Park along with the water is crucial to maintain the breeding populations of the fish-eating birds. Of the 42 species recorded inside the Park, only six are resident and the rest are breeding migrants. Therefore, water management is crucial for the sustenance of this Park.

The thick growth of aquatic macrophytes, especially the grass *Paspalum distichum* from 1983 is a major threat to the diversity of aquatic habitats. *Paspalum distichum*, an annual grass, had been kept under control by buffaloes for the last two and a half centuries. Therefore, in effect the buffaloes were acting as the main primary consumers. Ever since they were banned, the primary production *(Paspalum distichum)* has been without any check, resulting in the choking up of the entire wetland area. Ramifications of its impact on the Park could be catastrophic. Prudent action is, therefore, necessary to save this World Heritage Site.

V. S. Vijayan

REFERENCES

Gasquire, H. S. 1927. Record of Irrigation by bunds and channels in the Bharatpur State - During the years1896-97 to 1925-26 AD.

Kumar, C.R.A. and V.S. Vijayan. 1988. On the fish fauna of Keoladeo National Park, Bharatpur (Rajasthan). *J. Bombay nat. Hist. Soc.* 85(1): 44-49.

Meher-Homji . 1970. Some phytogeographic aspects of Rajasthan, India. *Vegetatio* 12: 299-321.

Pandey, R. 1979. Bharatpur up to 1826 (A Social and Political History of Jats). Rama Publishing House, Jaipur.

Perennou, C. and B.R. Ramesh. 1987. Explanatory notes on the vegetation map of Keoladeo National Park. French Institute of Pondicherry, Pondicherry and Bombay Natural History Society, Bombay.

Prasad, V.P. 1988. Wetland angiosperms of Keoladeo National Park, Bharatpur. *J. Econ. Tax. Bot.* 12: 457-466.

Prasad, V.P. 1990. Flora of Keoladeo National Park, Bharatpur. *J. Econ. Tax. Bot.* 13: 729-750.

Prasad, V.P., D. Mason and L. Vijayan 1991. Additions to the Flora of Keoladeo National Park, Bharatpur. *J. Econ. Tax. Bot.* 15: 21-29.

Puri, G.S., V.M. Meher-Homji, R.K. Gupta and S. Suri. 1983. Forest Ecology. Vol. 1. 2nd. ed. Oxford & IBH Publishing Co., New Delhi.

Vijayan, V.S. 1987. Keoladeo National Park Ecology Study. Annual Report 1986. Bombay Natural History Society, Bombay.

Vijayan, V.S. 1991. Keoladeo National Park Ecology Study. Final Report 1980-90. Bombay Natural History Society, Bombay.

ABBREVIATIONS

FBI. — Flora of British India 7 Vols. – by J.D. Hooker. 1872-97.

BP. — Bengal Plants 2 Vols. – by D. Prain. 1903.

FUGP. — Flora of Upper Gangetic Plain etc. 3 Vols. – by J.F. Duthie. 1903-29.

BBO. — Botany of Bihar and Orissa Vol. 2 – by H.H. Haines. 1922 (Repr. ed. 1961).

AA. — Aquatic Angiosperms -by K. Subramanyam. 1962.

FD. — Flora of Delhi – by J.K. Maheshwari. 1963.

FJ. — Flora of Java Vol. 2 – by C.A. Backer and Bakuizen Van Den Brink. 1965.

FG. — Flora Gorakhpurensis – by T.N. Srivastava. 1976.

FHD. — Flora of Hassan District – by Cecil J. Saldanha and Dan H. Nicolson. 1976.

FI. — Flora Iranica No.120 – ed. by K.H. Rechinger. 1976.

HFD. — Herbaceous Flora of Dehra Dun – by C.R. Babu. 1977.

FID. — Flora of Indian Desert – by M.M. Bhandari. 1978.

FGT — Flora of Gujarat State Part 1 – by G. L. Shah. 1978

FNER. — Flora of North East Rajasthan – by Shiva Sharma and B.Tiagi. 1979

FWP. — Flora of Western Pakistan No. 126 and 143 – ed. by E. Nasar and S.I. Ali. 1979 & 1982.

GM. — Grasses of Marathwada – by B.W. Patunkar. 1980.

FBR. — Flora of Banswara, Rajasthan – by V. Singh. 1983.

FTD. — Flora of Tonk District – by B.V. Shetty and R.P. Pandey. 1983.

FK. — Flora of Karnataka Vol.1 – by Cecil J. Saldanha. 1984.

FMD. — Flora of Murshidabad District – by D.N. Guha Bakshi. 1984.

FTN. — Flora of Tamil Nadu Series I. Analysis.

Vol.1 — by N.C. Nair and A.N. Henry. 1983.

Vol.2 — by A.N. Henry *et al.* 1987.

Vol.3 — by A.N. Henry *et al.* 1989.

KEY TO THE PLANT FAMILIES

1a. Plants growing in water **Group 1**

1b. Plants growing in land area (at times in temporarily waterlogged area) 2

2a. Trees and shrubs **Group 2**

2b. Herbs and undershrubs **Group 3**

2c. Climbers and twiners **Group 4**

GROUP 1 (Aquatic Plants)

1a. Plants not rooted or anchored to the substratum 2
1b. Plants rooted or anchored to the substratum 6
2a. Plants freely floating on the water surface; leaf margin entire or leaves absent 3
2b. Plants freely submerged; leaves divided into filiform segments 5
3a. Fruits with two sharp spiny horns .... **28. Trapaceae**
3b. Fruits without horns 4
4a. Plants minute; leaves absent but stem modified into green leaf like fronds .... **74. Lemnaceae**
4b. Plants not minute; leaves well developed, petiole swollen or bulblike .... **70. Pontederiaceae**
5a. Leaf segments without bladders, forklike at tip; flowers and fruits submerged; fruits with spine .... **67. Ceratophyllaceae**
5b. Leaf segments with bladders, not fork like at tip; flowers and fruits protrude above water suface; fruits not spiny .... **52. Lentibulariaceae**
6a. Plants submerged 7
6b. Plants emergent or with floating leaves 9
7a. Flowers in spike which protrude above water surface . **78. Potamogetonaceae**
7b. Flowers usually solitary which float or remain submerged 8
8a. Leaves slender, tapering to apex, sheathing at the base .. **79. Najadaceae**
8b. Leaves lance-shaped or long tape-like, not sheathing at the base .... **68. Hydrocharitaceae**
9a. Leaves compound, sensitive to touch 10
9b. Leaves simple, not sensitive to touch 11
10a. Plants erect; stem without spongy floats; leaves once pinnate .... **21. Fabaceae**
10b. Plants trailing on water surface; stem usually with spongy floats; leaves twice pinnate .... **23. Mimosaceae**
11a. Leaves floating on water surface 12
11b. Leaves not floating on water surface 16
12a. Flowers solitary, big in size .... **2. Nymphaeaceae**
12b. Flowers not solitary, not big in size 13
13a. Flowers in spike 14
13b. Flowers not in spike 15
14a. Rhizome tuberous; leaves from the base (radical); flowers white .... **77. Aponogetonaceae**
14b. Rhizome not tuberous; leaves from the nodes (cauline), alternate; flowers never white .... **78. Potamogetonaceae**
15a. Flowers in whorls on a long flowering stalk; petals three .... **75. Alismataceae**
15b. Flowers in a cluster beneath the leaf; petals more than three .... **44. Gentianaceae**

16a. Leaves parallel veined 17
16b. Leaves net veined 21
17a. Leaves ten or more times longer than broad, tapering towards apices; leaves at times absent 18
17b. Leaves never ten times longer than broad, not tapering towards apices; leaves always present 20
18a. Plants two metres or more tall; male and female flowers arranged in a spike on the same stalk separated by a distinct gap between them .... **73. Typhaceae**
18b. Plants less than two metres tall; flowers arranged not as above 19
19a. Stem (culm) cylindrical; leaf-sheath splitting; leaves with a strap-shaped projection at the top of the sheath (ligule) .... **81. Poaceae**
19b. Stem usually triangular, sometime cylindrical; leaf-sheath not splitting; leaves usually without ligule .... **80. Cyperaceae**
20a. Leaves broad, sagittate; flowers arranged in whorls on a stalk .... **75. Alismataceae**
20b. Leaves elliptic, not sagittate; flowers in terminal cymes . ... **76. Butomaceae**
21a. Leaves alternate 22
21b. Leaves opposite or whorled 26
22a. Flowers yellow .... **27. Onagraceae**
22b. Flowers not yellow 23
23a. Flowers in cylindrical spike, greenish yellow .... **37. Sphenocleaceae**
23b. Flowers never in cylindrical spike, not greenish yellow 24
24a. Plants with trailing hollow stem; flowers big, bell-shaped .... **48. Convolvulaceae**
24b. Plants without trailing hollow stem; flowers small, not bell shaped 25
25a. Flowers blue .... **45. Hydrophyllaceae**
25b. Flowers white or pink .... **62. Polygonaceae**
26a. Plants with a whorl of sharp golden yellow spines on the nodes .... **55. Acanthaceae**
26b. Plants without spines 27
27a. Plants rooting from aerial nodes .... **10. Elatinaceae**
27b. Plants not rooting from aerial nodes 28
28a. Plants either minute or with heterophyllous leaves (submerged dissected leaves and aerial entire leaves); flowers irregular .... **51. Scrophulariaceae**
28b. Plants neither minute nor heterophyllous; flowers regular .... **26. Lythraceae**

GROUP 2 (Trees and Shrubs)

1a. Unbranched palm; trunk with persistent leaf-bases ..... **72. Arecaceae**
1b. Branched tree or shrub; trunk without persistent leaf-bases 2
2a. Trees, conifer-like; leaves minute, scale-like .... **9. Tamaricaceae**
2b. Trees or shrubs, not conifer-like; leaves not scale-like 3
3a. Plants with flattened green stems, armed with sharp spines; leaves absent .... **30. Cactaceae**
3b. Plants not as above 4
4a. Leaves pinnately compound (leaflets attached on either side of the rachis) 5
4b. Leaves simple, lobed or digitately compound (leaflets arising from the same point on the rachis) 9
5a. Leaves once pinnately compound (except genus *Delonix*, in which leaves are twice pinnately compound) 6
5b. Leaves twice or thrice pinnately compound 8
6a. Flowers regular, white; fruit fleshy (drupe) with one seed .. **17. Meliaceae**
6b. Flowers irregular, not white; fruit a dry pod (legume) 7
7a. Flowers papilionaceous (pea or butterfly-like); stamens united into one or two bundles .... **21. Fabaceae**
7b. Flowers not papilionaceous; stamens free .... **22. Caesalpiniaceae**
8a. Flowers irregular; inflorescence drooping and branched ..... **53. Bignoniaceae**
8b. Flowers regular; inflorescence not drooping or branched ... **23. Mimosaceae**
9a. Perianth not differentiated into sepals and petals 10
9b. Perianth differentiated into sepals and petals 12
10a. Shrubs; fruits 3-lobed .... **63. Euphorbiaceae**
10b. Trees; fruits not 3-lobed 11
11a. Flowers arranged in fascicles on leafless branches; fruits flat, dry and winged (samara) .... **64. Ulmaceae**
11b. Flowers arranged inside fleshy receptacles or in catkins; fruits fleshy, not flat or winged .... **65. Moraceae**
12a. Flowers regular 13
12b. Flowers irregular 26
13a. Stamens more than 10 14
13b. Stamens less than 10 17
14a. Stamens united into a group (monadelphous) .... **11. Malvaceae**
14b. Stamens free 15
15a. Gynophore (an elongated stipe which elevates the ovary) present .... **6. Capparidaceae**
15b. Gynophore absent 16
16a. Shrubs; leaves toothed; fruit a 4-lobed drupe .... **13. Tiliaceae**
16b. Small or medium size trees; leaves not toothed; fruit a capsule or berry .... **25. Myrtaceae**
17a. Flowers with united petals 18
17b. Flowers with free petals 24

GROUP 2 (Trees and Shrubs) (contd.)

18a. Leaves opposite 19
18b. Leaves alternate 21
19a. Plants with milky latex; leaves sessile; fruits paired follicles; seeds with a tuft of white silky hairs which forms a parachute-like structure .... **42. Asclepiadaceae**
19b. Plants without milky latex; leaves petiolate; fruits not follicles; seeds without hairs 20
20a. Flowers greenish-yellow; fruits fleshy; seed one .... **41. Salvadoraceae**
20b. Flowers white or whitish-yellow; fruits not fleshy; seeds more than one .... **34. Rubiaceae**
21a. Flowers pinkish or bluish, funnel-shaped, big in size .. **48. Convolvulaceae**
21b. Flowers not as above 22
22a. Flowers pale yellow, unisexual (male and female parts in different flowers) .... **40. Ebenaceae**
22b. Flowers white, bisexual (male and female parts in sameflower) 23
23a. Calyx covered with glandular hairs that produce a viscous sticky substance .... **38. Plumbaginaceae**
23b. Calyx not covered with glandular hairs .... **47. Ehretiaceae**
24a. Shrubs; thorns or prickles absent; flowers highly scented, arranged in terminal clusters (panicle) .... **26. Lythraceae**
24b. Shrubs or small trees; thorns or prickles present; flowers not highly scented, arranged in small axillary clusters (cyme) 25
25a. Nodes (joints of the stem) with paired prickles............ **18. Rhamnaceae**
25b. Nodes with single thorn .... **16. Balanitaceae**
26a. Nodes swollen; bracts large and conspicuous .... **55. Acanthaceae**
26b. Nodes not swollen; bracts small .... **56. Verbenaceae**

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GROUP 3 (Herbs and Undershrubs)

1a. Leaves parallel veined, much longer than broad (except *Commelina benghalensis*); floral parts in whorls of three or multiples of three 2
1b. Leaves net veined, not much longer than broad (except *Spergula* sp.); floral parts usually in whorls of 5, 4, or in their multiples 4
2a. Perianth well developed, differentiated into outer green calyx and inner bluish corolla ..... **71. Commelinaceae**
2b. Perianth reduced to scales, bristles or absent, never petal like 3
3a. Leaf sheath splitting; ligule present; leaf blade always present ..... **81. Poaceae**
3b. Leaf sheath not splitting; ligule usually absent; in some species leaf blade absent ..... **80. Cyperaceae**
4a. Calyx and corolla distinct 5
4b. Calyx and corolla not distinct 37
5a. Flowers with petals free to the base 6
5b. Flowers with petals completely or partially united 24
6a. Flowers with sepals free to the base 7
6b. Flowers with sepals completely or partially united 21
7a. Stamens free 8
7b. Stamens united (monadelphous) 20
8a. Stamens fewer than 10 9
8b. Stamens more than 10 18
9a. Leaves pinnately lobed or digitately compound or pinnately compound 10
9b. Leaves simple, not lobed 15
10a. Leaves pinnately compound or pinnately lobed 11
10b. Leaves digitately compound 14
11a. Leaves pinnately lobed ..... **4. Brassicaceae**
11b. Leaves pinnately compound 12
12a. Herbs, climbing with tendrils; leaves twice pinnately compound, leaflets lobed; flowers white; fruits 3-lobed, bladder-like ..... **20. Sapindaceae**
12b. Herbes, prostrate or erect; leaves once pinnately compound, leaflets not lobed; flowers yellow; fruits not 3-lobed, legumes or spiny schizocarps 13
13a. Herbs, prostrate; fruit a schizocarp, spiny ..... **14. Zygophyllaceae**
13b. Herbs, erect; fruit a legume, not spiny ..... **22. Caesalpiniaceae**
14a. Herbs, creeping with subterranean stems; leaflets 3, broader than long ..... **15. Oxalidaceae**
14b. Herbs, erect; leaflets 3 to 5, longer than broad ..... **5. Cleomaceae**
15a. Leaves opposite; flowers reddish ..... **10. Elatinaceae**
15b. Leaves alternate or whorled; flowers not reddish 16
16a. Leaves alternate, a pair of filiform appendages present at the base of the leaf blades; flowers yellow ..... **13. Tiliaceae**
16b. Leaves in true or false whorls, filiform appendages absent; flowers white or greenish 17

17a. Herbs, erect; leaves narrow .... **7. Caryophyllaceae**

17b. Herbs, prostrate or diffuse; leaves not narrow .... **31. Molluginaceae**

18a. Herbs, prostrate; nodes with silky hairs; leaves opposite, leaf margin entire .... **8. Portulacaceae**

18b. Herbs, erect; nodes without hairs; leaves alternate, margin toothed or spiny 19

19a. Herbs, prickly, with yellow latex; leaves pinnately lobed, spiny, without filiform appendages at the base of the leaf blades; flowers big, showy; sepals fall before the petals .... **3. Papaveraceae**

19b. Herbs, unarmed, without yellow latex; leaves not pinnately lobed, a pair of filiform apendages present at the base of the leaf blade, margins toothed; flowers small; sepals never fall before petals. **13. Tiliaceae**

20a. Anthers with single chamber .... **11. Malvaceae**

20b. Anthers with two chambers .... **12. Sterculiaceae**

21a. Flowers irregular, papilionaceous; stamens united into one or two groups; fruit a legume .... **21. Fabaceae**

21b. Flowers regular, not papilionaceous; stamens free; fruit not a legume 22

22a. Flowers solitary, yellow; stamens more than 10 .... **24. Rosaceae**

22b. Flowers not solitary (except in *Rotala* sp.), not yellow; stamens fewer than 10 23

23a. Leaves opposite, simple .... **26. Lythraceae**

23b. Leaves alternate, pinnately compound .... **33. Apiaceae**

24a. Flowers arranged in a compact cluster on a conical receptacle (head or capitulum), appearing like a single flower surrounded by many bracts; fruits with a parachute-like tuft of hairs (pappus) (except in *Eclipta* sp. which lack pappus) .... **35. Asteraceae**

24b. Flowers not as above; fruits without pappus 25

25a. Flowers regular 26

25b. Flowers irregular 33

26a. Leaves alternate 27

26b. Leaves opposite 30

27a. Fruits with more than 6 seeds 28

27b. Fruits with fewer than 6 seeds 29

28a. Leaves sessile (stalkless), linear; fruits 3-valved .... **36. Campanulaceae**

28b. Leaves not sessile (except *Nicotiana* sp.), not linear; fruits, not 3-valved .... **50. Solanaceae**

29a. Flowers in helicoid spikes (solitary in *Coldenia* sp.); corolla cylindrical; fruits formed by 4 nutlets .... **46. Boraginaceae**

29b. Flowers solitary or 1 to 3 arranged on an axillary peduncle; fruits not formed by 4 nutlets .... **48. Convolvulaceae**

30a. Leaves with stipules; flowers white .... **34. Rubiaceae**

30b. Leaves without stipules; flowers blue or pinkish 31

31a. Leaves heart-shaped (cordate); fruit stalk recurved .... **39. Primulaceae**

31b. Leaves not heart-shaped; fruit stalk not recurved 32

32a. Basal leaves arranged in a rosette; flowers pinkish; fruits not 4-celled .... **44. Gentianaceae**
32b. Basal leaves not arranged in a rosette; flowers bluish; fruits 4-celled .... **46. Boraginaceae**
33a. Plants aromatic; style arising from the base of a 4-lobed ovary (gynobasic) .... **57. Lamiaceae**
33b. Plants not aromatic; style arising from terminal part of the ovary 34
34a. Bracts prominent; stems with swollen nodes .... **55. Acanthaceae**
34b. Bracts not prominent; stems without swollen nodes 35
35a. Fruits spiny .... **54. Pedaliaceae**
35b. Fruits not spiny 36
36a. Fruits with numerous seeds .... **51. Scrophulariaceae**
36b. Fruits with few seeds .... **56. Verbenaceae**
37a. Plants aromatic; flowers unisexual, male and female flowers on separate plants (dioecious); leaves digitately compound .... **66. Cannabinaceae**
37b. Plants not aromatic; flowers usually bisexual, if unisexual male and female on same plant; leaves not digitately compound 38
38a. Flowers bisexual 39
38b. Flowers unisexual 43
39a. Leaves with sheathing stipules (ocrea) .... **62. Polygonaceae**
39b. Leaves without sheathing stipules 40
40a. Perianth petal-like 41
40b. Perianth not petal-like 42
41a. Fruits without glands on the surfaces .... **32. Aizoaceae**
41b. Fruits with glands on the surfaces .... **58. Nyctaginaceae**
42a. Flowers subtended by bracts .... **59. Amaranthaceae**
42b. Flowers not subtended by bracts .... **60. Chenopodiaceae**
43a. Ovary and fruit with one chamber; fruit an utricle .... **59. Amaranthaceae**
43b. Ovary and fruit with 3 chambers; fruit a schizocarp or capsule .... **63. Euphorbiaceae**

GROUP 4 (Climbers and Twiners)

1a. Tendrils present 2
1b. Tendrils absent 4
2a. Flowers unisexual .... **29. Cucurbitaceae**
2b. Flowers bisexual 3
3a. Leaves simple, margin entire; tendrils located at the end of the flowerings talk (peduncle); flowers pinkish; fruits enclosed by perianth .... **62. Polygonaceae**
3b. Leaves 3-foliolate, margin toothed; tendrils located opposite to each leaf; flowers greenish white; fruit not enclosed by perianth .... **19. Vitaceae**
4a. Flowers irregular, papilonaceous (butterfly or pea-like); stamens united into one or two bundles .... **21. Fabaceae**
4b. Flowers regular; stamens free 5
5a. Stem with spines .... **69. Liliaceae**
5b. Stem without spines 6
6a. Flowers arranged in spikes; perianth of one whorl, petal like, sepals and petals not distinct .... **61. Basellaceae**
6b. Flowers never in spikes; perianth of two whorls, petals and sepals distinct 7
7a. Petals free .... **1. Menispermaceae**
7b. Petals united 8
8a. Stem yellow; leaves absent; parasitic on other plants .. **49. Cuscutaceae**
8b. Stem not yellow, leaves present; not parasitic 9
9a. Plants without milky latex; leaves alternate .... **48. Convolvulaceae**
9b. Plants with milky latex; leaves opposite 10
10a. Filaments of the stamens free; anthers without horny wings .... **43. Periplocaceae**
10b. Filaments of the stamens united; anthers with horny wings .... **42. Asclepiadaceae**

KEY TO THE PLANT GENERA AND SPECIES

1. MENISPERMACEAE

1a. Stems corky; leaves ovate-cordate, glabrous .... **Tinospora**
1b. Stems not corky; leaves ovate-oblong, hairy .... **Cocculus**

Cocculus DC. – one species; **C. hirsutus**
Tinospora Miers – one species; **T. cordifolia**

2. NYMPHAEACEAE

Nymphaea L. – two species;

1a. Leaf margin toothed; stamens without appendages at tip .... **N. pubescens**
1b. Leaf margin not toothed; stamens with long appendages at tip .... **N. nouchali**

3. PAPAVERACEAE

Argemone L. – two species;

1a. Flowers yellow; style much less than 1 mm long; stigma lobes not spreading .... **A. mexicana**
1b. Flowers white or pale yellow; style approximately 1 mm long; stigma lobes spreading .... **A. ochroleuca**

4. BRASSICACEAE (CRUCIFERAE)

1a. Fruits cylindrical, longer than broad .... **Rorippa**
1b. Fruits globose or subglobose, broader than long 2
2a. Plants prostrate or ascending; fruits separating into 2 indehiscent lobes .. **Coronopus**
2b. Plants erect; fruits not separating into 2 lobes .... **Cochlearia**

Cochlearia L. – one species; **C. cochlearioides**
Coronopus L. – one species; **C. didymus**
Rorippa Scop. – one species; **R. indica**

5. CLEOMACEAE

Cleome L. – two species;

1a. Flowers pinkish; androgynophore present .... **C. gynandra**
1b. Flowers yellow; androgynophore absent .... **C. viscosa**

6. CAPPARACEAE

1a. Armed shrubs or trees .... **Capparis**
1b. Unarmed shrubs or trees 2
2a. Deciduous trees; leaves 3-foliolate .... **Crataeva**
2b. Climbing shrubs; leaves simple .... **Maerua**

Capparis L. – two species;

1a. Leaves absent; flowers reddish .... **C. decidua**
1b. Leaves present; flowers white .... **C. sepiaria**

Crataeva L. – one species; **C. magna**
Maerua Forsk. – one species; **M. oblongifolia**

7. CARYOPHYLLACEAE

Spergula L. – one species; **S. arvensis**

8. PORTULACACEAE

Portulaca L. – one species; **P. quadrifida**

9. TAMARICACEAE

Tamarix L. – one species; **T. aphylla**

10. ELATINACEAE

1a. Plants minute; stems rooting at aerial nodes; leaf margin entire; flowers solitary .... **Elatine**
1b. Plants not minute; stems not rooting at aerial nodes; leaf margin sharply dentate; flowers in clusters .... **Bergia**

Bergia L. – one species; **B. ammannioides**
Elatine L. – one species; **E. triandra**

11. MALVACEAE

1a. Trees .... **Thespesia**
1b. Herbs or shrubs 2
2a. Calyx spathe-like .... **Abelmoschus**
2b. Calyx not spathe-like 3
3a. Bracteoles absent 4
3b. Bracteoles present 5

4a. Carpels with 1 seed .... **Sida**
4b. Carpels with 2 to 3 seeds .... **Abutilon**
5a. Bracteoles large, leafy .... **Gossypium**
5b. Bracteoles small, not leafy 6
6a. Bracteoles 3 7
6b. Bracteoles 6 to 10 8
7a. Prostrate herbs; flowers white .... **Malva**
7b. Erect herbs; flowers yellow .... **Malvastrum**
8a. Prostrate herbs .... **Althaea**
8b. Erect herbs or undershrubs .... **Hibiscus**

Abelmoschus Medic. – one species; **A. ficulneus**
Abutilon Mill. – two species;

1a. Carpels more than 15, each carpel with a short beak .... **A. indicum**
1b. Carpels less than 15, each carpel with a spreading awn .... **A. ramosum**

Althaea L. – one species; **A. ludwigii**
Gossypium L. – one species; **G. arboreum**
Hibiscus L. – three species;

1a. Leaves deeply 5-lobed; flowers yellow with purple centre .... **H. caesius**
1b. Leaves entire or 3-lobed; flowers white or pinkish 2
2a. Bracteoles 6; seeds cottony .... **H. ovalifolius**
2b. Bracteoles 7 or more; seeds not cottony .... **H. amblyocarpus**

Malva L. – one species; **M. parviflora**
Malvastrum A.Gray – one species; **M. coromandelianum**
Sida L. – three species;

1a. Recurved spines present below the petioles .... **S. spinosa**
1b. Spines absent below the petioles 2
2a. Leaves broadly ovate, cordate at base .... **S. cordata**
2b. Leaves diamond-shaped (rhomboid), cuneate at base .... **S. rhombifolia**

Thespesia Soland. ex Corr. – one species; **T. populnea**

12. STERCULIACEAE

Melochia L. – one species; **M. corchorifolia**

13. TILIACEAE

1a. Shrubs; flowers white .... **Grewia**
1b. Herbs; flowers yellow .... **Corchorus**

Corchorus L. – five species;

1a. Leaf base without a pair of filiform appendages .... **C. fascicularis**
1b. Leaf base with a pair of filiform appendages 2
2a. Fruits subglobose capsules .... **C. capsularis**
2b. Fruits cylindrical capsules 3
3a. Fruits with single beak at apex .... **C. olitorius**
3b. Fruits with three beaks at apex 4
4a. Fruits winged .... **C. aestuans**
4b. Fruits not winged .... **C. tridens**

Grewia L. – one species; **G. tenax**

14. ZYGOPHYLLACEAE

Tribulus L. – one species; **T. terrestris**

15. OXALIDACEAE

Oxalis L. – one species; **O. corniculata**

16. BALANITACEAE

Balanites Del. – one species; **B. aegyptiaca**

17. MELIACEAE

Azadirachta A. Juss. – one species; **A. indica**

18. RHAMNACEAE

Ziziphus Mill. – two species

1a. Trees or large shrubs; leaves more than 2.5 cm long; fruits more than 1.2 cm in diameter .... **Z. mauritiana**
1b. Shrubs; leaves less than 2.5 cm long; fruits less than 1.2 cm in diameter .... **Z. nummularia**

19. VITACEAE

Cayratia Juss. – one species; **C. trifolia**

20. SAPINDACEAE

Cardiospermum L. – one species; **C. halicacabum**

21. FABACEAE (PAPILIONACEAE)

1a. Stamens united into one group (monadelphous) 2
1b. Stamens united into two groups (diadelphous) 7
2a. Trees 3
2b. Herbs or climbers 4
3a. Stamens 9; fruits thin, flat pods .... **Dalbergia**
3b. Stamens 10; fruits thick, woody pods .... **Pongamia**
4a. Leaves simple .... **Goniogyna**
4b. Leaves compound 5
5a. Erect herbs .... **Crotalaria**
5b. Climbers or twiners 6
6a. Stem slender; leaves with 3 leaflets .... **Teramnus**
6b. Stem woody; leaves with many leaflets .... **Abrus**
7a. Armed shrubs or undershrubs 8
7b. Unarmed herbs or shrubs 9
8a. Leaves simple; flowers reddish .... **Alhagi**
8b. Leaves compound; flowers yellow .... **Sesbania**
9a. Flowers yellow 10
9b. Flowers not yellow 17
10a. Leaves with many leaflets .... **Aeschynomene**
10b. Leaves simple or with 3 leaflets. (Modified into tendrils in *Lathyrus* sp.) 11
11a. Trailing or twining herbs 12
11b. Erect or prostrate herbs 14
12a. Fruits 2 seeded pods .... **Rhynchosia**
12b. Fruits 4 to 10 seeded pods 13
13a. Leaves modified into tendrils .... **Lathyrus**
13b. Leaves not modified into tendrils .... **Vigna**
14a. Fruits with 1 seed .... **Melilotus**
14b. Fruits with 2 to many seeds 15
15a. Leaves simple .... **Alysicarpus**
15b. Leaves compound, leaflets 3 16
16a. Fruits arranged in 2 to 4 spirals .... **Medicago**
16b. Fruits not arranged in spirals .... **Trigonella**
17a. Erect or prostrate herbs or shrubs .... **Indigofera**
17b. Climbing or twining herbs or undershrubs 18
18a. Plants perennials; flowers blue or white .... **Clitoria**
18b. Plants annuals; flowers pinkish .... **Vicia**

Abrus Adans. – one species; **A. precatorius**
Aeschynomene L. – one species; **A. indica**
Alhagi Adans. – one species; **A. pseudalhagi**
Alysicarpus Desv. – two species;

1a. Fruits constricted between the seeds, appearing beadlike .... **A. longifolius**
1b. Fruits not constricted between the seeds, not appearing beadlike .... **A. vaginalis**

Clitoria L. – one species; **C. ternatea**
Crotalaria L. – one species; **C. medicaginea**
Dalbergia L. f. – one species; **D. sissoo**
Goniogyna DC. – one species; **G. hirta**
Indigofera L. – three species;

1a. Leaves simple ..... **I. cordifolia**
1b. Leaves compound 2
2a. Leaves with 3 leaflets ..... **I. trita**
2b. Leaves with more than 3 leaflets ..... **I. tinctoria**

Lathyrus L. – one species; **L. aphaca**
Medicago L. – one species; **M. polymorpha**
Melilotus Mill. – one species; **M. indica**
Pongamia Vent. – one species; **P. pinnata**
Rhynchosia Lour. – one species; **R. minima**
Sesbania Scop. – one species; **S. bispinosa**
Teramnus R. Br. – one species; **T. labialis**
Trigonella L. – two species;

1a. Flowers in sessile clusters; fruits short, not curved; seeds 2 ..... **T. occulta**
1b. Flowers in pedicellate racemes; fruits long, curved; seeds more than 2 ..... **T. hamosa**

Vicia L. – one species; **V. sativa**
Vigna Savi – one species; **V. trilobata**

22. CAESALPINIACEAE

1a. Leaves once pinnately compound 2
1b. Leaves twice pinnately compound 3
2a. Flowers with 3 petals; fertile stamens 3 ..... **Tamarindus**
2b. Flowers with 5 petals; fertile stamens 5 to 10 ..... **Cassia**
3a. Flowers bright red ..... **Delonix**
3b. Flowers yellow ..... **Parkinsonia**

Cassia L. – six species;

1a. Trees 2
1b. Shrubs and herbs 4
2a. Fertile stamens 7 ..... **C. siamea**
2b. Fertile stamens 10 3
3a. Fruits cylindrical ..... **C. fistula**
3b. Fruits flat ..... **C. surattense**
4a. Flowers with 5 stamens ..... **C. pumila**
4b. Flowers with 7 stamens 5
5a. Leaves with a gland at the base of the petiole ..... **C. occidentalis**
5b. Leaves with a gland between the lowest pair of leaflets ..... **C. tora**

Delonix Raf. – one species; **D. regia**
Parkinsonia L. – one species; **P. aculeata**
Tamarindus L. – one species; **T. indica**

23. MIMOSACEAE

1a. Aquatic herbs .... **Neptunia**
1b. Trees and shrubs 2
2a. Unarmed trees 3
2b. Armed trees or shrubs 4
3a. Small trees; stamens 10 .... **Leucaena**
3b. Tall trees; stamens indefinite in number .... **Albizia**
4a. Flowers in heads 5
4b. Flowers in spikes 6
5a. Fruits spirally twisted .... **Pithecellobium**
5b. Fruits not spirally twisted .... **Acacia**
6a. Spikes single coloured; fruits not twisted .... **Prosopis**
6b. Spikes two coloured (upper flowers yellow and lower rose coloured); fruits twisted .... **Dichrostachys**

Acacia Mill. – two species;

1a. Flowers bright yellow; fruits greyish, constricted between the seeds .... **A. nilotica**
1b. Flowers cream-coloured; fruits brownish, not constricted between the seeds .... **A. leucophloea**

Albizia Durazz. – one species; **A. lebbeck**
Dichrostachys (DC.) Wt. & Arn. – one species; **D. cinerea**
Leucaena Benth. – one species; **L. latisiliqua**
Neptunia Lour. – one species; **N. oleracea**
Pithecellobium Mart. – one species; **P. dulce**
Prosopis L. – two species;

1a. Branches with thorns; fruits compressed .... **P. juliflora**
1b. Branches with prickles; fruits cylindrical .... **P. cineraria**

24. ROSACEAE

Potentilla L. – one species; **P. supina**

25. MYRTACEAE

1a. Branches drooping; leaves alternate; flowers reddish .... **Callistemon**
1b. Branches not drooping; leaves opposite; flowers white or cream-coloured .... **Syzygium**

Callistemon R. Br. – one species; **C. lanceolatus**
Syzygium Gaertn. – one species; **S. cumini**

26. LYTHRACEAE

1a. Shrubs or small trees .... **Lawsonia**
1b. Herbs 2
2a. Flowers in peduncled cymes or in axillary sessile clusters .... **Ammannia**
2b. Flowers sessile, solitary .... **Rotala**

Ammannia L. – two species;

1a. Leaves subauricled at base; flowers in axillary peduncled cymes .... **A. auriculata**
1b. Leaves narrowed towards the base; flowers in axillary, sessile clusters .. **A. baccifera**

Lawsonia L. – one species; **L. inermis**
Rotala L. – two species;

1a. Fruits subglobose capsules .... **R. densiflora**
1b. Fruits ellipsoid capsules .... **R. indica**

27. ONAGRACEAE

Ludwigia L. – one species; **L. perennis**

28. TRAPACEAE

Trapa L. – one species; **T. natans** var. **bispinosa**

29. CUCURBITACEAE

1a. Tendrils unbranched 2
1b. Tendrils branched 5
2a. Flowers white .... **Coccinia**
2b. Flowers yellow 3
3a. Male flowers with a large bract on the pedicel .... **Momordica**
3b. Male flowers without a bract on the pedicel 4
4a. Fruits globose, less than 2 cm in diameter .... **Mukia**
4b. Fruits not globose, more than 2 cm across .... **Cucumis**
5a. Fruits dry, fibrous, ridges or soft spines present on the surface .... **Luffa**
5b. Fruits fleshy, smooth, ridges or soft spines absent on the surface .... **Trichosanthes**

Coccinia Wt. & Arn. – one species; **C. grandis**
Cucumis L. – one species; **C. melo**
Luffa – two species

1a. Tendrils 2-fid; flowers white; fruits with soft spines .... **L. echinata**
1b. Tendrils 3-fid; flowers yellow; fruits with 10 ridges, spines absent ...... **L. acutangula**

Momordica L. – one species; **M. charantia** var. **muricata**
Mukia Arn. – one species; **M. maderaspatana**
Trichosanthes L. – one species; **T. cucumerina**

30. CACTACEAE

Opuntia Mill. – one species; **O. elatior**

31. MOLLUGINACEAE

Glinus L. – two species;

1a. Plants densely hairy .... **G. lotoides**
1b. Plants not hairy .... **G. oppositifolia**

32. AIZOACEAE

1a. Flowers with 1 style .... **Trianthema**
1b. Flowers with 2 styles .... **Zaleya**

Trianthema L. – two species;

1a. Leaves unequal in size at each node; flowers solitary, stamens more than 5 .... **T. portulacastrum**
1b. Leaves equal in size at each node; flowers in clusters, stamens 5 .... **T. triquetra**

Zaleya Burm. f. – one species; **Z. govindia**

33. APIACEAE (UMBELLIFERAE)

Seseli L. – one species; **S. diffusum**

34. RUBIACEAE

1a. Herbs 2
1b. Trees or shrubs 3
2a. Plants creeping, rooting at the nodes; flowers solitary .... **Dentella**
2b. Plants not creeping or rooting at the nodes; flowers 1 to 3 in axillary peduncles. .... **Oldenlandia**
3a. Plants armed with stout spines; flowers white, solitary, axillary .... **Catunaregam**
3b. Plants unarmed; flowers whitish-yellow in terminal globose heads .... **Mitragyna**

Catunaregam Wolf – one species; **C. spinosa**
Dentella Frost. – one species; **D. repens**
Mitragyna Korth. – one species; **M. parvifolia**

Oldenlandia L. – two species;

1a. Petiole absent; capsule flat at apex ... **O. corymbosa**
1b. Petiole present (2 to 4 mm long); capsule narrowing towards apex ... **O. pseudocorymbosa**

35. ASTERACEAE (COMPOSITAE)

1a. Flower heads solitary ... 2
1b. Flower heads not solitary (except in *Blumea obliqua*) ... 9
2a. Flower heads yellow ... 3
2b. Flower heads white or purplish ... 6
3a. Plants prostrate ... 4
3b. Plants erect ... 5
4a. Achenes winged ... **Cotula**
4b. Achenes not winged ... **Grangea**
5a. Stems 4-angled; leaves compound, opposite ... **Bidens**
5b. Stems not angled; leaves simple, alternate ... **Pulicaria**
6a. Stems winged ... **Sphaeranthus**
6b. Stems not winged ... 7
7a. Leaves alternate; heads purple ... **Oligochaeta**
7b. Leaves opposite; heads white ... 8
8a. Pappus absent ... **Eclipta**
8b. Pappus present ... **Tridax**
9a. Heads bright or pale yellow (pinkish in *Blumea obliqua*) ... 10
9b. Heads not yellow ... 16
10a. Flowering heads with all the florets ligulate ... 11
10b. Flowering heads with all the florets not ligulate ... 12
11a. Achenes compressed, not beaked ... **Sonchus**
11b. Achenes narrowed, beaked ... **Launaea**
12a. Leaves with ear-like appendage at the base (auriculate) ... **Vicoa**
12b. Leaves without ear-like appendage at the base ... 13
13a. Fruiting involucre covered with hooked prickles ... **Xanthium**
13b. Fruiting involucre not covered with hooked prickles ... 14
14a. Plants densely woolly ... **Gnaphalium**
14b. Plants not densely woolly (except *Blumea mollis*) ... 15
15a. Leaves less than 1 cm wide, crowded on the stem; anthers not tailed at the base ... **Conyza**
15b. Leaves more than 1 cm wide, not crowded on the stem; anthers tailed at the base. ... **Blumea**
16a. Leaves spiny; heads 1-flowered ... **Echinops**
16b. Leaves not spiny; heads many-flowered ... 17
17a. Leaves opposite ... **Ageratum**
17b. Leaves alternate ... 18
18a. Heads sessile ... **Caesulia**

18b. Heads peduncled 19
19a. Leaves shortly petiolate .... **Vernonia**
19b. Leaves sessile 20
20a. Leaves usually pinnatifid; involucre bracts linear .... **Laggera**
20b. Leaves not pinnatifid; involucre bracts broad .... **Pluchea**

Ageratum L. – one species; **A. conyzoides**
Bidens L. – one species; **B. biternata**
Blumea DC. – five species

1a. Plants villous .... **B. mollis**
1b. Plants not villous 2
2a. Flower heads solitary .... **B. obliqua**
2b. Flower heads many 3
3a. Leaves not pinnatifid .... **B. eriantha**
3b. Leaves usually pinnatifid 4
4a. Flower heads in broad, open corymbs .... **B. laciniata**
4b. Flower heads in branched panicles .... **B. membranacea**

Caesulia Roxb. – one species; **C. axillaris**
Conyza Less. – one species; **C. bonariensis**
Cotula L. – one species; **C. anthemoides**
Echinops L. – one species; **E. echinatus**
Eclipta L. – one species; **E. prostrata**
Gnaphalium L. – four species;

1a. Flower heads in terminal clusters .... **G. leuto-album**
1b. Flower heads in axillary clusters or spikes 2
2a. Plants prostrate, spreading; heads in terminal or axillary clusters....... **G. pulvinatum**
2b. Plants erect or ascending; heads in spikes 3
3a. Leaf apices broadly rounded; pappus hairs united at the base .... **G. purpureum**
3b. Leaf apices usually not rounded; pappus hairs free .... **G. polycaulon**

Grangea Adans. – one species; **G. maderaspatana**
Laggera Sch. - Bip. – one species; **L. aurita**
Launaea Cass. – one species; **L. procumbens**
Oligochaeta (DC.) C. Koch. – one species; **O. ramosa**
Pluchea Cass. – two species;

1a. Leaves oblong-lanceolate, margin entire .... **P. lanceolata**
1b. Leaves broadly elliptic, margin usually toothed .... **P. wallichiana**

Pulicaria Gaertn. – one species; **P. crispa**
Sonchus L. – two species;

1a. Achenes transversely rugose .... **S. oleraceus**
1b. Achenes not transversely rugose .... **S. asper**

Sphaeranthus L. – one species; **S. indicus**
Tridax L. – one species; **T. procumbens**
Vernonia Schreb. – one species; **V. cinerea**
Vicoa Cass. – one species; **V. indica**
Xanthium L. – one species; **X. strumarium**

36. CAMPANULACEAE

Wahlenbergia Schrad. ex Roth. – one species; **W. marginata**

37. SPHENOCLEACEAE

Sphenoclea Gaertn. – one species; **S. zeylanica**

38. PLUMBAGINACEAE

Plumbago L. – one species; **P. zeylanica**

39. PRIMULACEAE

Anagallis L. – one species; **A. arvensis**

40. EBENACEAE

Diospyros L. – one species; **D. cordifolia**

41. SALVADORACEAE

Salvadora L. – two species;

1a. Leaves linear-lanceolate; flowers sessile; fruits yellow when ripe .... **S. oleoides**
1b. Leaves elliptic-lanceolate or ovate; flowers short-pedicellate; fruits reddish when ripe .... **S. persica**

42. ASCLEPIADACEAE

1a. Flowers greenish-yellow 2
1b. Flowers not greenish-yellow 4
2a. Fruits (follicles) covered with soft spines .... **Pergularia**
2b. Fruits without spines 3
3a. Fruits (follicles) tapering to a beak .... **Pentatropis**
3b. Fruits not tapering to a beak .... **Wattakaka**
4a. Erect shrubs .... **Calotropis**
4b. Twiners 5
5a. Flowers purplish; fruits long and slender .... **Ceropegia**
5b. Flowers pale-rose with purple veins; fruits ovoid-lanceolate .... **Oxystelma**

Calotropis R. Br. – one species; **C. procera**
Ceropegia L. – one species; **C. bulbosa**
Oxystelma R. Br. – one species; **O. secamone**
Pentatropis Wt. & Arn. – one species; **P. nivalis**
Pergularia L. – one species; **P. daemia**
Wattakaka Hassk. – one species; **W. volubilis**

43. PERIPLOCACEAE

Cryptostegia R. Br. – one species; **C. grandiflora**

44. GENTIANACEAE

1a. Terrestrial herbs; flowers pinkish .... **Centaurium**
1b. Aquatic herbs; flowers white .... **Nymphoides**

Centaurium Hill – one species; **C. centaurioides**
Nymphoides Seguier – two species;

1a. Leaves purple beneath; corolla lobes with a broad crest in the middle, without white hairs .... **N. cristata**
1b. Leaves greenish beneath; corolla lobes without a crest in the middle, with white hairs .... **N. indica**

45. HYDROPHYLLACEAE

Hydrolea L. – one species; **H. zeylanica**

46. BORAGINACEAE

1a. Leaves opposite; flowers bluish .... **Trichodesma**
1b. Leaves alternate; flowers white 2
2a. Leaf margins toothed, sides of the leaves unequal; flowers solitary .... **Coldenia**
2b. Leaf margins entire, sides of the leaves equal; flowers in spikes or racemes .... **Heliotropium**

Coldenia L. – one species; **C. procumbens**
Heliotropium L. – two species;

1a. Leaves elliptic or obovate, more than 5 mm wide .... **H. ovalifolium**
1b. Leaves linear, less than 5 mm wide .... **H. strigosum**

Trichodesma R. Br. – one species; **T. amplexicaule**

47. EHRETIACEAE

1a. Trees; style 4-parted .... **Cordia**
1b. Shrubs; style 2-parted .... **Ehretia**

Cordia L. – one species; **C. dichotoma**
Ehretia L. – one species; **E. aspera**

48. CONVOLVULACEAE

1a. Flowers with 2 styles .... **Evolvulus**
1b. Flowers with 1 style 2
2a. Leaves subsessile, linear .... **Convolvulus**
2b. Leaves petiolate, not linear 3
3a. Leaves kidney shaped; flowers yellow .... **Merremia**
3b. Leaves not kidney shaped; flowers not yellow .... **Ipomoea**

Convolvulus L. – one species; **C. microphyllus**
Evolvulus L. – one species; **E. alsinoides**
Ipomoea L. – seven species;

1a. Flowers white 2
1b. Flowers not white 3
2a. Leaf margins 5 to 7-lobed .... **I. pes-tigridis**
2b. Leaf margins entire .... **I. sindica**
3a. Erect or ascending shrubs with milky latex .... **I. carnea**
3b. Twining, trailing or prostrate herbs without milky latex 4
4a. Plants glabrous throughout 5
4b. Plants hairy throughout 6
5a. Plants trailing on mud or on water surface; corolla pinkish, stamens and style included in the corolla .... **I. aquatica**
5b. Plants terrestrial twiners; corolla red, stamens and style exserted from the corolla .... **I. hederifolia**
6a. Leaves white woolly on the lower surfaces, margins entire .... **I. dichroa**
6b. Leaves not white woolly on the lower surfaces, margins lobed .... **I. nil**

Merremia Dennst. – one species; **M. emarginata**

49. CUSCUTACEAE

Cuscuta L. – one species; **C. reflexa**

50. SOLANACEAE

1a. Fruit a berry 2
1b. Fruit a capsule 5
2a. Berry enclosed by an inflated calyx 3
2b. Berry not enclosed by an inflated calyx 4
3a. Flowers solitary, pedicellate, yellow .... **Physalis**
3b. Flowers in clusters, sessile, greenish .... **Withania**
4a. Flowers yellow .... **Lycopersicon**
4b. Flowers white, purplish or violet .... **Solanum**
5a. Flowers solitary; capsules spiny .... **Datura**
5b. Flowers in terminal racemes; capsules smooth .... **Nicotiana**

Datura L. – one species; **D. innoxia**
Lycopersicon Mill. – one species; **L. esculentum**
Nicotiana L. – two species;

1a. Corolla tube slightly swollen above; lobes obtuse, white .... **N. alata**
1b. Corolla tube not swollen above; lobes acute, white or greenish-white .... **N. plumbaginifolia**

Physalis L. – one species; **P. minima**
Solanum L. – two species;

1a. Plants armed with prickles; flowers purple or violet .... **S. surattense**
1b. Plants without prickles; flowers white .... **S. nigrum**

Withania Pauq. – one species; **W. somnifera**

51. SCROPHULARIACEAE

1a. Stamens 2 2
1b. Stamens 4 (either four perfect stamens or two perfect stamens and two staminodes) 3
2a. Plants very small, creeping; leaves less than 1 cm long; calyx lobes 3 .... **Glossostigma**
2b. Plants not very small; leaves more than 1 cm long; calyx lobes 5 .... **Peplidium**
3a. Leaves alternate; flowers yellow .... **Verbascum**
3b. Leaves opposite or whorled; flowers not yellow 4
4a. Plants terrestrial; leaves opposite; flowers with 2 perfect stamens and 2 staminodes .... **Lindernia**
4b. Plants aquatic or marshy; leaves whorled or opposite (if aquatic, submerged leaves highly dissected); flowers with 4 perfect stamens .... **Limnophila**

Glossostigma Wt. & Arn. – one species; **G. diandrum**
Limnophila R. Br. – one species; **L. indica**
Lindernia All. – three species;

1a. Leaf margin entire .... **L. parviflora**
1b. Leaf margin sharply or shallowly toothed 2
2a. Stamens 4, staminodes absent; capsules shorter than or as long as the calyx .... **L. crustacea**
2b. Stamens 2, staminodes 2; capsules longer than the calyx .... **L. ciliata**

Peplidium Del. – one species; **P. maritimum**
Verbascum L. – one species; **V. chinense**

52. LENTIBULARIACEAE

Utricularia L. – three species;

1a. Flowering stalk with a whorl of floats .... **U. stellaris**
1b. Flowering stalk without a whorl of floats 2
2a. Leaves more than 3 cm long; racemes with 3 to 8 flowers; pedicels reflexed in fruit; seeds not winged .... **U. aurea**
2b. Leaves less than 2 cm long; racemes with 1 to 3 flowers; pedicels erect in fruit; seeds winged .... **U. exoleta**

53. BIGNONIACEAE

Millingtonia L. – one species; **M. hortensis**

54. PEDALIACEAE

Pedalium L. – one species; **P. murex**

55. ACANTHACEAE

1a. Woody shrubs 2
1b. Herbs 3
2a. Calyx lobes 4; fertile stamens 2 .... **Barleria**
2b. Calyx lobes 5; fertile stamens 4 .... **Adhatoda**
3a. Basal rosette of leaves present; inflorescence one to many spikes arising from the centre of the basal rosette .... **Elytraria**
3b. Basal rosette of leaves absent; inflorescence not spikes arising from the centre of a basal rosette 4
4a. Spines present (either on the stems or on the bracts) 5
4b. Spines absent 6

5a. Stems with yellow spines on nodes; leaves in whorls of 6; bracts not bristly .... **Hygrophila**
5b. Stems without spines; leaves in whorls of 4; bracts bristly .... **Blepharis**
6a. Flowers with 4 stamens 7
6b. Flowers with 2 stamens 8
7a. Plants with tuberous roots; corolla more than 4.5 cm long .... **Ruellia**
7b. Plants without tuberous roots; corolla less than 4 cm long .... **Dipteracanthus**
8a. Fruits with 20 or more seeds .... **Hemiadelphis**
8b. Fruits with 8 or less seeds 9
9a. Plants often without leaves in later stage; flowers in axillary clusters .... **Dicliptera**
9b. Plants with leaves throughout; flowers not in axillary clusters 10
10a. Flowers in open panicles; lower anther cell without a basal spur .... **Peristrophe**
10b. Flowers in spikes; lower anther cell with a basal spur 11
11a. Calyx segments 4 .... **Rostellularia**
11b. Calyx segments 5 12
12a. Flowers in terminal or axillary 1-sided spikes .... **Rungia**
12b. Flowers in terminal or axillary spikes that are not 1-sided .... **Justicia**

Adhatoda Nees – one species; **A. zeylanica**
Barleria L. – one species; **B. cristata**
Blepharis Juss. – one species; **B. maderaspatensis**
Dicliptera Juss. – one species; **D. verticillata**
Dipteracanthus Nees – one species; **D. prostratus**
Elytraria Mich. – one species; **E. acaulis**
Hemiadelphis Nees – one species; **H. polyspermus**
Hygrophila R. Br. – one species; **H. auriculata**
Justicia L. – one species; **J. heterocarpa**
Peristrophe Nees – one species; **P. paniculata**
Rostellularia Reichenb – one species; **R. quinqueangularis**
Ruellia L. – one species; **R. tuberosa**
Rungia Nees – two species;

1a. Bracts not conspicuously winged; flowers small, bright blue .... **R. pectinata**
1b. Bracts conspicuously winged; flowers large, violet or pinkish .... **R. repens**

56. VERBENACEAE

1a. Herbs; leaf margin toothed .... **Phyla**
1b. Shrubs or trees; leaf margin toothed or not toothed 2
2a. Leaves digitately compound .... **Vitex**
2b. Leaves simple 3
3a. Flowers white, short pediceled, corolla more than 2.5 cm long .... **Clerodendrum**
3b. Flowers pink, red or yellow, sessile or subsessile, corolla less than 1.5 cm long. .... **Lantana**

Clerodendrum Burm. f. ex L. – one species; **C. phlomidis**
Lantana L. – one species; **L. camara** var. **aculeata**
Phyla Lour. – one species; **P. nodiflora**
Vitex L. – one species; **V. negundo**

57. LAMIACEAE (LABIATAE)

1a. Perfect stamens 2 .... **Salvia**
1b. Perfect stamens 4 2
2a. Flowers whitish pink, calyx 5-lobed .... **Ocimum**
2b. Flowers white, calyx 8 to 10-toothed .... **Leucas**

Leucas R. Br. – one species; **L. urticaefolia**
Ocimum L. – one species; **O. basilicum**
Salvia L. – one species; **S. plebeia**

58. NYCTAGINACEAE

1a. Flowers sessile to subsessile, less than 0.3 cm long .... **Boerhavia**
1b. Flowers pedicellate, more than 0.4 cm long .... **Commicarpus**

Boerhavia L. – one species; **B. diffusa**
Commicarpus Standl. – two species;

1a. Fruits glandular on the ribs .... **C. chinensis**
1b. Fruits with large glands on the crown .... **C. helenae**

59. AMARANTHACEAE

1a. Leaves alternate 2
1b. Leaves opposite 4
2a. Perianth more than 6 mm long; fruits with 2 or more seeds .... **Celosia**
2b. Perianth less than 5 mm long; fruits with 1 seed 3
3a. Flowers bisexual, pinkish; stigma on a distinct style .... **Digera**
3b. Flowers unisexual, greenish; stigma sessile .... **Amaranthus**
4a. Fruits with hooks .... **Pupalia**
4b. Fruits without hooks 5
5a. Flowers in terminal spikes 6
5b. Flowers in dense, axillary clusters of small spikes or in globose heads 7
6a Flowers greenish, in elongated loose spikes; bracteoles spiny .... **Achyranthus**
6b. Flowers white, in ovoid or cylindrical dense spikes; bracteoles not spiny .... **Gomphrena**
7a. Flowers in small axillary spikes; perianth Ca 1 mm long; filaments of the stamens free .... **Nothosaerva**
7b. Flowers in axillary globose heads; perianth more than 2 mm long; filaments of stamens fused .... **Alternanthera**

Achyranthes L. – one species; **A. aspera** L. var. **argentea** and var. **porphyristachya**
Alternanthera Forsk. – three species;

1a. Stems sparsely hairy; leaves sessile; stamens 3 .... **A. sessilis**
1b. Stems densely white-hairy; leaves tapering to the petiole (attenuate); stamens 5 5
2a. Perianth segments spiny at tip .... **A. pungens**
2b. Perianth segments not spiny at tip .... **A. paronychioides**

Amaranthus L. – three species;

1a. Plants with spines in the leaf axils .... **A. spinosus**
1b. Plants without spines in the leaf axiles 2
2a. Bracteoles awned or bristle-like, equalling or exceeding the tepals; fruits dehiscent .... **A. tricolor**
2b. Bracteoles not awned or bristle-like, shorter than the tepals; fruits indehiscent .... **A. virdis**

Celosia L. – one species; **C. argentea**
Digera Dorak. – one species; **D. muricata**
Gomphrena L. – one species; **G. serrata**
Nothosaerva Wt. – one speices; **N. brachiata**
Pupalia Juss. – one species; **P. lappacea**

60. CHENOPODIACEAE

1a. Leaves flat, not fleshy .... **Chenopodium**
1b. Leaves cylindrical, fleshy 2
2a. Leaves less than 8 mm long or absent; perianth lobes winged .... **Salsola**
2b. Leaves more than 8 mm long; perianth lobes not winged .... **Suaeda**

Chenopodium L. – two species;

1a. Plants with shite mealy pubescence; leaf margin entire or lobed; seeds 1 mm or less in length, smooth, shiny black .... **C. album**
1b. Plants without white mealy pubescence; leaf margin toothed; seeds 1 mm or more in length, rugose, dull black .... **C. murale**

Salsola L. – one species; **S. baryosma**
Saueda Forsk – one species; **S. fruticosa**

61. BASELLACEAE

Basella L. – one species; **B. alba**

62. POLYGONACEAE

1a. Plants climbers; tendrils present .... **Antigonon**
1b. Plants erect, not climbers; tendrils absent 2
2a. Flowers pinkish, rosy or white, perianth 4 to 5-merous .... **Polygonum**
2b. Flowers green, perianth 3-merous .... **Rumex**

Antigonon Endl. – one species; **A. leptopus**
Polygonum L. – four species;

1a. Seeds lenticular (lens-shaped) 2
1b. Seeds trigonus 3
2a. Leaves rough hairy; cilia present at the mouth of stipule; bracts hairy ... **P. limbatum**
2b. Leaves glabrous; cilia absent at the mouth of stipule; bracts glabrous ..... **P. glabrum**
3a. Plants prostrate; stems hairy; stipules irregularly divided at mouth; flowers in axillary clusters .... **P. plebeium**
3b. Plants erect; stems glabrous; stipules long ciliate at mouth; flowers in terminal racemes .... **P. barbatum**

Rumex L. – one species; **R. dentatus**

63. EUPHORBIACEAE

1a. Shrubs .... **Kirganelia**
1b. Herbs 2
2a. Plants usually with milky juice; flowers arranged in cyathia (a special type of inflorescence in which unisexual flowers are condensed within a bracteate envelope) ....**Euphorbia**
2b. Plants without milky juice; flowers not arranged in cyathia 3
3a. Plants densely hairy; leaf bases glandular .... **Chrozophora**
3b. Plants not densely hairy; leaf bases not glandular 4
4a. Leaves less than 3.5 cm long; stamens 3 or 4; ovary with 2 ovules in each chamber .... **Phyllanthus**
4b. Leaves more than 3.5 cm long; stamens more than 4; ovary with one ovule in each chamber .... **Acalypha**

Acalypha L. – two species;

1a. Bracts ciliate; capsules glabrous .... **A. ciliata**
1b. Bracts not ciliate; capsules hairy .... **A. indica**

Chrozophora Juss. – one species; **C. rottleri**
Euphorbia L. – four species;

1a. Plants prostrate; leaves less than 1.2 cm long 2
1b. Plants erect or ascending; leaves more than 1.2 cm long 3
2a. Stems, leaves on the lower surfaces and fruits hairy .... **E. thymifolia**
2b. Stems, leaves and fruits glabrous .... **E. orbiculata**
3a. Plants glabrous (peduncles and lower leaf surface slightly hairy) .... **E. parviflora**
3b. Plants hairy throughout .... **E. hirta**

Kirganelia Juss. – one species; **K. reticulata**
Phyllanthus L. – four species;

1a. Stipules peltate (attached inside the margin) 2
1b. Stipules not peltate 3
2a. Leaves wedge-shaped at the base; stipules not reddish-brown, or sagittate at the base; filaments united .... **P. maderapratensis**
2b. Leaves not wedge-shaped at the base; stipules reddish-brown, sagittate at the base; filaments free .... **P. virgatus**
3a. Calyx with 6 sepals .... **P. fraternus**
3b. Calyx with 5 sepals .... **P. amarus**

64. ULMACEAE

Holoptelea Planch. – one species; **H. integrifolia**

65. MORACEAE

1a. Flowers hidden in a globose hollow receptacle .... **Ficus**
1b. Flowers exposed on an elongated spike .... **Morus**

Ficus L. – three species;

1a. Receptacles (figs) peduncled, male flowers with 1 stamen .... **F. racemosa**
1b. Receptacles (figs) sessile, male flowers with more than 1 stamen 2
2a. Aerial supporting roots present; leaves hairy beneath, not tailed at apex; fruits (figs) red when ripe .... **F. benghalensis**
2b. Aerial supporting roots absent; leaves glabrous, tailed at apex; fruits (figs) purple when ripe .... **F. religiosa**

Morus L. – one species; **M. alba**

66. CANNABINACEAE

Cannabis L. – one species; **C. sativa**

67. CERATOPHYLLACEAE

Ceratophyllum L. – one species; **C. demersum**

68. HYDROCHARITACEAE

1a. Leaves cauline, whorled, small, not ribbon-like .... **Hydrilla**
1b. Leaves radical (tufted at the base), very long, ribbon-like .... **Vallisneria**

Hydrilla Rich. – one species; **H. verticillata**
Vallisneria L. – one species; **V. natans**

69. LILIACEAE

Asparagus L. – one species; **A. racemosus**

70. PONTEDERIACEAE

1a. Plants usually free floating with a dense mass of submerged roots below; petioles swollen into floats; perianth partially fused .... **Eichhornia**
1b. Plants not free floating; petioles not swollen into floats; perianth free to the base .... **Monochoria**

Eichhornia Kunth – one species; **E. crassipes**
Monochoria Presl. – one species; **M. vaginalis**

71. COMMELINACEAE

1a. Leaf sheath inflated; inflorescence arising from the inflated leaf sheath; stamens 6 .... **Tonningia**
1b. Leaf sheath not inflated; inflorescence not as above; fertile stamens 2 or 3 2
2a. Inflorescence enclosed in spathe-like bracts; flowers irregular, fertile stamens 3 .... **Commelina**
2b. Inflorescence not enclosed in spathe-like bracts; flowers regular, stamens 2 .... **Murdannia**

Commelina L. – three species;

1a. Leaves usually ovate, broad; spathe-like bracts sessile; seeds rugose .... **C. benghalensis**
1b. Leaves lanceolate, narrow; spathe-like bracts stalked; seeds smooth 2
2a. Leaf margins undulate; capsules usually with 1 to 3 seeds .... **C. forskalaei**
2b. Leaf margins not undulate; capsules usually with 5 seeds .... **C. hasskarlii**

Murdannia Royle – one species; **M. nudiflora**
Tonningia Necker ex Juss. – one species; **T. axillaris**

72. ARECACEAE (PALMAE)

Phoenix L. – one species; **P. sylvestris**

73. TYPHACEAE

Typha L. – one species; **T. angustata**

74. LEMNACEAE

1a. Fronds (leaf like modification of stem) less than 2 mm wide; roots absent .... **Wolffia**
1b. Fronds more than 2 mm wide, roots present 2
2a. Fronds with many roots .... **Spirodela**
2b. Fronds with single root .... **Lemna**

Lemna L. – one species; **L. perpusilla**
Spirodela Schleid. – one species; **S. polyrhiza**
Wolffia Horkel ex Schleid. – one species; **W. globosa**

75. ALISMATACEAE

1a. Leaves arrow-shaped, base sagittate, not floating on the water surface .... **Limnophyton**
1b. Leaves ovate, base cordate, floating on the water surface .... **Sagittaria**

Limnophyton Miq. – one species; **L. obtusifolium**
Sagittaria L. – one species; **S. guayanensis**

76. BUTOMACEAE

Butomopsis Kunth – one species; **B. latifolia**

77. APONOGETONACEAE

Aponogeton L. – one species; **A. natans**

78. POTAMOGETONACEAE

Potamogeton L. – three species;

1a. Leaves petiolate, upper ones floating on the water surface and lower ones submerged .... **P. nodosus**
1b. Leaves sessile, all submerged 2
2a. Leaves filiform, less than 3 mm wide; inflorescence an interrupted spike .... **P. pectinatus**
2b. Leaves not filiform, more than 3 mm wide; inflorescence a continuous spike .... **P. crispus**

79. NAJADACEAE

Najas L. – two species;

1a. Plants dichotomously branched; leaves minutely dentate .... **N. minor**
1b. Plants not dichotomously branched; leaves not minutely dentate .... **N. graminea**

80. CYPERACEAE

1a. Leaves absent; inflorescence a solitary spikelet .... **Eleocharis**
1b. Leaves present (rarely reduced to sheaths); inflorescence few to many variously arranged spikelets 2
2a. Glumes arranged in 2 vertical rows .... **Cyperus**
2b. Glumes arranged spirally 3
3a. Achene subtended by bristles; style not expanded at the base .... **Scirpus**
3b. Achene not subtended by bristles; style expanded at the base .... **Fimbristylis**

Cyperus L. – nine species;

1a. Stigmas 2; achenes lenticular (lens-shaped) 2
1b. Stigmas 3; achenes trigonous 4
2a. Plants 100 cm or more tall; leaves and bracts more than 1 cm wide .... **C. alopecuroides**
2b. Plants less than 40 cm tall; leaves and bracts less than 1 cm wide 3
3a. Plants perennials; spikelets with 2 flowers .... **C. triceps**
3b. Plants annuals; spikelets with more than 2 flowers .... **C. pygmaeus**
4a. Plants perennials, with rhizomes and bulbiferous tubers 5
4b. Plants annuals, with fibrous roots 6
5a. Leaves arising atleast 1 cm above the base .... **C. bulbosus**
5b. Leaves arising from the base .... **C. rotundus**
6a. Glumes with an arista; achenes less than half the length of the glumes .... **C. compressus**
6b. Glumes without an arista; achenes more than half the length of the glumes 7
7a. Glumes and spikelets less than 6 mm long; achenes less than 1 mm long .... **C. difformis**
7b. Glumes and spikelets more than 6 mm long; achenes more than 1 mm long 8
8a. Rachis smooth; glumes smooth on the back .... **C. iria**
8b. Rachis scabrid on the angles; glumes with finely toothed margins on the top .... **C. alulatus**

Eleocharis R. Br. – four species;

1a. Stems triangular in cross section .... **E. acutangula**
1b. Stems round in cross section 2
2a. Plants up to 10 cm high; rhizome absent .... **E. atropurpurea**
2b. Plants more than 10 cm high; rhizome present 3
3a. Stems transversely septate .... **E. dulcis**
3b. Stems not transversely septate .... **E. palustris**

Fimbristylis Vahl – four species;

1a. Stigmas 2; achenes lenticular 2
1b. Stigmas 3; achenes trigonal 3
2a. Leaf margins scabrous; upper half of the glumes hairy .... **F. ferruginea**
2b. Leaf margins smooth; glumes glabrous .... **F. bisumbellata**
3a. Perennials; rhizome present; spikelets sessile .... **F. falcata**
3b. Annuals; rhizome absent; spikelets pedicellate .... **F. miliacea**

Scirpus L. – six species;

1a. Stigmas 2; achenes lenticular .... **S. littoralis**
1b. Stigmas 3; achenes trigonous 2
2a. Inflorescence terminal; spikelets pedicellate; achenes smooth .... **S. tuberosus**
2b. Inflorescence lateral; spikelets sessile; achenes rugose 3
3a. Inflorescence located near the base of the stems .... **S. articulatus**
3b. Inflorescence located above the middle of the stems 4
4a. Spikelets 8 or fewer .... **S. lateriflorus**
4b. Spikelets more than 8 5
5a. Glumes 2-2.5 mm long, with red spots .... **S. supinus**
5b. Glumes Ca 3.5 mm long, yellowish, red spots absent .... **S. roylei**

81. POACEAE (GRAMINEAE)

1a. Spikelets with awns, hooks or bristles 2
1b. Spikelets without awns, hooks, or bristles 19
2a. Inflorescence comprised of racemes arranged in digitate or sub-digitate manner 3
2b. Inflorescence not comprised of racemes arranged in digitate or sub-digitate manner 7
3a. Rachis of the raceme ending in a sharp point .... **Dactyloctenium**
3b. Rachis of the raceme ending in a spikelet 4
4a. Spikelets subtended by bristles .... **Chloris**
4b. Spikelets not subtended by bristles 5
5a. Leaf margin with bulbous based hairs; upper glumes with long purplish hairs .... **Alloteropis**
5b. Leaf margin without bulbous based hairs; upper glumes without hairs 6
6a. Nodes of the stem bearded; upper glumes with an awn, 1 to 2 cm long .... **Dichanthium**
6b. Nodes of the stem glabrous; glumes with an arista, 1 mm or less long .... **Acrachne**
7a. Inflorescence spikes or spike-like panicles 8
7b. Inflorescence not spikes or spike-like panicles 11
8a. Plants less than 20 cm tall; upper glumes with hooked spines .... **Tragus**
8b. Plants more than 20 cm tall; upper glumes without hooked spines 9
9a. Spikelets not subtended by bristles .... **Polypogon**

9b. Spikelets subtended by bristles 10
10a. Upper lemmas transversely rugose; spikelets falling without the bristles;
bristles not united at the base into a hard cup .... **Setaria**
10b. Upper lemmas not transversely rugose; spikelets falling with bristles;
bristles united at the base into a hard cup .... **Cenchrus**
11a. Inflorescence feathery, plumy panicles 12
11b. Inflorescence not feathery, plumy panicles 13
12a. Ligule a fringe of hairs; lemma awned .... **Erianthus**
12b. Ligule an erose scarious rim; lemma aristate .... **Arundo**
13a. Inflorescence an open or contracted panicle 14
13b. Inflorescence a panicle of spike-like racemes 16
14a. Awns 3-parted .... **Aristida**
14b. Awns entire or absent 15
15a. Awns present (more than 5 cm long); rachis of the panicle ending in
a spikelet .... **Oryza**
15b. Awns absent; rachis of the panicle ending in a 8–11 mm long
awn-like bristle .... **Pseudoraphis**
16a. Raceme subtended by a spathe .... **Iseilema**
16b. Raceme not subtended by a spathe 17
17a. Spikelets subtended by bristles .... **Cenchrus**
17b. Spikelets not subtended by bristles 18
18a. Stems delicate; bristles present on the rachis of the raceme; spikelets
with 3 awns .... **Oplismenus**
18b. Stems robust; bristles absent on the rachis of the raceme; spikelets
shortly awned or cuspidate .... **Echinochloa**
19a. Inflorescence a plumy, feathery, terminal panicle .... **Saccharum**
19b. Inflorescence not a plumy, feathery, terminal panicle 20
20a. Inflorescence axillary, peduncled, loose spike; female spikelets
subtended by male spikelets and contained in a hard bony bead .... **Coix**
20b. Inflorescence, spikelets, and flowers not as above 21
21a. Inflorescence subtended by a sheath .... **Crypsis**
21b. Inflorescence not subtended by a sheath 22
22a. Plants growing in water or near water areas; spikelets embedded
in a cavity of the rachis .... **Hemarthria**
22b. Plants growing in dry or wet areas; spikelets not embedded in a cavity
of the rachis 23
23a. Inflorescence a spike or spike-like panicle 24
23b. Inflorescence not a spike or spike-like panicle 25
24a. Leaf margins scabrous; spikes more than 1 cm wide; spikelets more
than 5 mm long; rachis not glandular .... **Phalaris**
24b. Leaf margins not scabrous; spikes less than 1 cm wide; spikelets less
than 5 m m long; rachis glandular .... **Sacciolepis**
25a. Inflorescence racemes arranged in digitate or subdigitate manner 26

25b. Inflorescence not racemes arranged in digitate or subdigitate manner 28
26a. Racemes usually 2 (rarely 3) .... **Paspalum**
26b. Racemes usually more than 2 27
27a. Wing of rachis at least 1 mm wide; spikelets more than 2.5 mm long,
flowers 2 .... **Digitaria**
27b. Wing of rachis absent or less than 1 mm wide; spikelets less than
2.5 mm long, functional flower 1 .... **Cynodon**
28a. Inflorescence an open or contracted panicle 29
28b. Inflorescence a panicle of spike-like racemes 36
29a. Spikelets with more than 2 functional flowers 30
29b. Spikelets with 1 or 2 functional flowers 31
30a. Lemmas usually lobed or toothed, with hairs on the nerves .... **Deplachne**
30b. Lemmas never lobed or toothed, with glabrous nerves .... **Eragrostis**
31a. Spikelets with a hardened cup-shaped structure at the base .... **Eriochloa**
31b. Spikelet without a hardened cup-shaped structure at the base 32
32a. Spikelets more than 4 mm long; prickles present on the glumes .... **Vetiveria**
32b. Spikelets less than 4 mm long; prickles absent on the glumes 33
33a. Spikelets more than 2 mm long 34
33b. Spikelets less than 2 mm long 35
34a. Rachis dotted with yellowish-brown glands .... **Sacciolepis**
34b. Rachis not dotted with glands .... **Panicum**
35a. Spikelets with 2 functional flowers .... **Leptochloa**
35b. Spikelets with 1 functional flower .... **Sporobolus**
36a. Spike-like racemes up to 3 cm long 37
36b. Spike-like racemes more than 3 cm long 40
37a. Spikelets with 20 to 35 functional flowers .... **Desmostachya**
37b. Spikelets with 1 functional flower 38
38a. Spikelets paired .... **Echinochloa**
38b. Spikelets solitary 39
39a. Plants growing in water or marshy area; spikelets less than 3 mm
long .... **Paspalidium**
39b. Plants growing in moist sandy soil; spikelets more than 3 mm long .... **Brachiaria**
40a. Spikelets with 2 functional flowers, less than 2 mm long .... **Leptochloa**
40b. Spikelets with 1 functional flower, more than 2 mm long 41
41a. Spikelets paired; lower glumes turned away from the rachis, upper
glumes acuminate, cuspidate, or with an awn .... **Echinochloa**
41b. Spikelets solitary; lower glumes turned towards the rachis, upper
glumes not acuminate, cuspidate or with an awn .... **Brachiaria**

Acrachne Wt. & Arn. – one species; **A. racemosa**
Alloteropsis Presl. – one species; **A. cimicina**
Aristida L. – one species; **A. adscensionis**

Arundo L. – one species; **A. donax**
Brachiaria Griseb. – three species;

1a. Spikelets between 2 and 2.5 mm long; pedicels with long, white hairs ...... **B. reptans**
1b. Spikelets more than 2.5 mm long; pedicels without white hairs 2
2a. Each stem with 2 or 3 racemes; racemes up to 2.5 cm long; spikelets more than 3.5 mm long ...... **B. distachya**
2b. Each stem with more than 3 racemes; racemes more than 3 cm long; spikelets less than 3 mm long ...... **B. ramosa**

Cenchrus L. – two species;

1a. Plants perennial; racemes purplish; spikelets oblong- lanceolate, bristles up to 15 mm long, fused at the base only ...... **C. ciliaris**
1b. Plants annuals; racemes turning black when mature; spikelets ovate-oblong, bristles up to 3 mm long, fused to form a cup ...... **C. setigerus**

Chloris Sw. – two species;

1a. Spikelets with 5 awns; 2 empty glumes present below and above the fertile flower ...... **C. quinquesetica**
1b. Spikelets with 2 awns and 1 arista; 1 empty glume present above the fertile flower ...... **C. dolichostachya**

Coix L. – one species; **C. lacryma-jobi**
Crypsis Ait. – one species; **C. schoenoides**
Cynodon Rich. – one species; **C. dactylon**
Dactyloctenium Willd. – one species; **D. aegyptium**
Desmostachya Stapf – one species; **D. bipinnata**
Dichanthium Willem. – one species; **D. annulatum**
Digitaria Heist. ex Fabr. – one species; **D. ciliaris**
Diplachne P. Beauv. – one species; **D. fusca**
Echinochloa P. Beauv. – two species;

1a. Stems prostrate; pedicels not hairy ...... **E. colonum**
1b. Stems erect; pedicels with bulbous based, white hairs ...... **E. crusgalli**

Eragrostis P. Beauv. – six species;

1a. Spikelets breaking up from above downwards; rachis fragile 2
1b. Spikelets breaking up from below upwards; rachis tough 4
2a. Panicles spike-like, cylindrical, (1 to 2 cm long) ...... **E. cilaris**
2b. Panicles not spike-like, loosely branching or spreading 3
3a. Rachis bearded at the nodes; keels of the palea ciliate ...... **E. tenella**

3b. Rachis not bearded at the nodes; keels of the palea not ciliate .... **E. japonica**
4a. Leaf margins and pedicels not glandular .... **E. gangetica**
4b. Leaf margins and pedicels glandular 5
5a. Spikelets more than 2 mm wide; lemmas more than 1.5 mm long .... **E. cilianensis**
5b. Spikelets less than 2 mm wide; lemmas less than 1.5 mm long .... **E. minor**

Erianthus Michx. – one species; **E. ravennae**
Eriochloa Kunth – two species;

1a. Pedicels hairy; awn present .... **E. fatmensis**
1b. Pedicels glabrous; awn absent .... **E. procera**

Hemarthria R. Br. – one species; **H. compressa**
Iseilema Anderss. – one species; **I. laxum**
Leptochloa P. Beauv. – one species; **L. panicea**
Oplismenus P. Beauv. – one species; **O. burmannii**
Oryza L. – one species; **O. rufipogon**
Panicum L. – three species;

1a. Plants aquatic; spikelets lanceolate, 3-4 mm long .... **P. paludosum**
1b. Plants terrestrial; spikelets ovoid, acute, or elliptic, 2 to 3 mm long 2
2a. Annuals, 25 to 50 cm tall; leaf margins with white hairs .... **P. psilopodium**
2b. Perennials, up to 150 cm tall; leaf margins glabrous .... **P. antidotale**

Paspalidium Stapf – one species; **P. punctatum**
Paspalum L. – two species;

1a. Spikelets broadly elliptic to orbicular, obtuse at apex .... **P. scrobiculatum**
1b. Spikelets ovate to oblong, acute at apex .... **P. distichum**

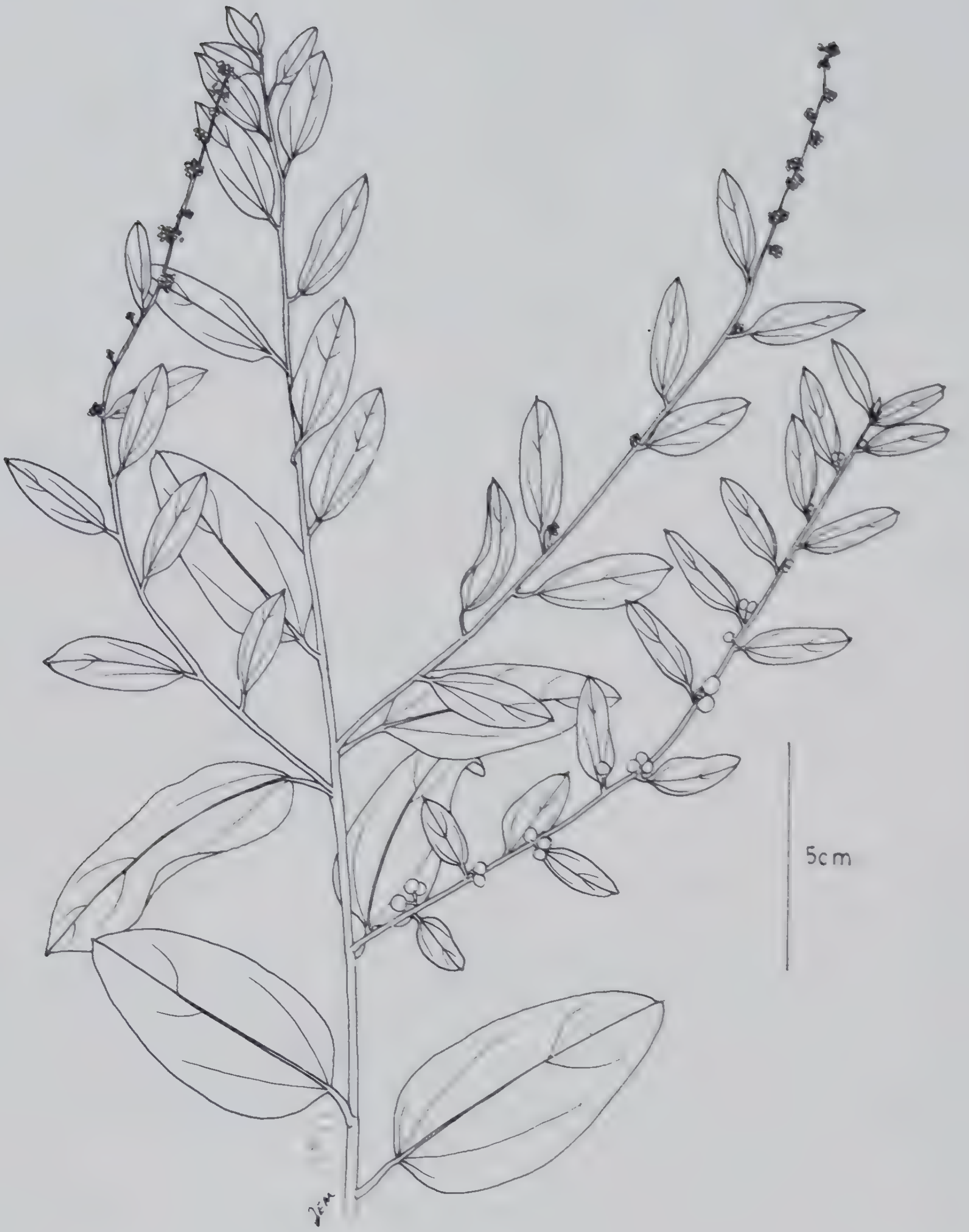
Phalaris L. – one species; **P. minor**
Polypogon Dest. – one species; **P. monspeliensis**
Pseudoraphis Griff. – one species; **P. spinescens**
Saccharum L. – one species; **S. spontaneum**
Sacciolepis Nash – one species; **S. indica**
Setaria P. Beauv. – two species;

1a. Panicles continuous, cylindrical; bristles retrorsely barbed .... **S. verticillata**
1b. Panicles interrupted; bristles antrorsely barbed .... **S. intermedia**

Sporobolus R. Br. – three species;

1a. Annuals; rhizome or woody bases absent; spikelets less than 2 mm long .... **S. coromandelianus**
1b. Perennials; rhizome or woody bases present; spikelets more than 2 mm long 2
2a. Panicles contracted, branches not whorled; spikelets Ca 2 mm long .... **S. helvolus**
2b. Panicles diffuse, branches whorled; spikelets more than 2mm long .... **S. ioclados**

Tragus Hall. – one species; **T. roxburghii**
Vetiveria Lem. - Lisanc. – one species; **V. zizanioides**

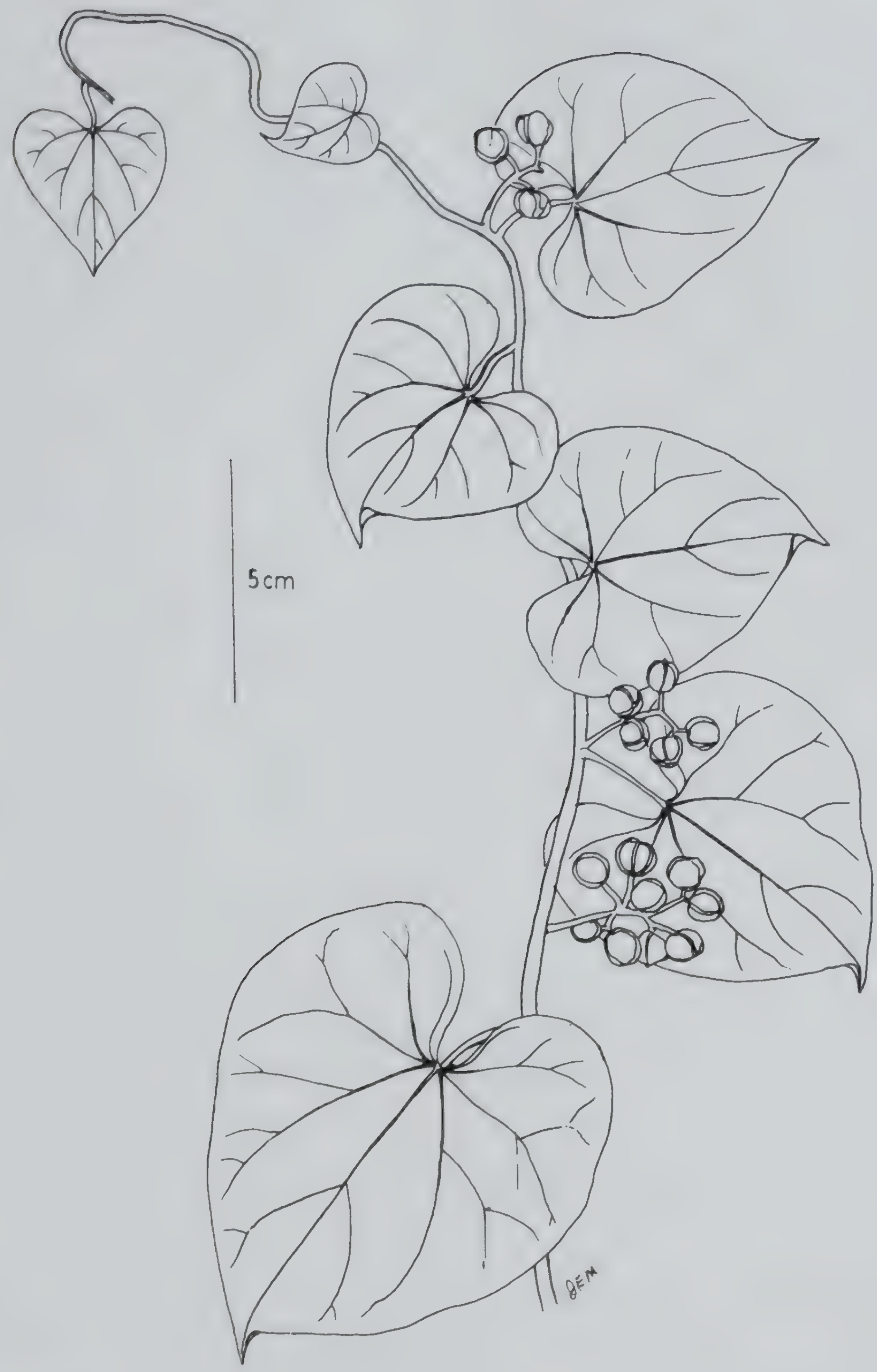


1. MENISPERMACEAE

COCCULUS DC.

Cocculus hirsutus (L.) Diels

Synonym	*C. villosus* DC.
Characteristics	A twining or straggling shrub with small soft hairs on stem and leaves. Leaves 4 to 8 cm long, ovate-oblong; petiole densely villous. Flowers unisexual; male flowers in short axillary clusters; female flowers solitary or 2 to 3 in leaf axils. Fruit a subglobose drupe, dark purple or black when ripe.
Habitat	Climbing on small trees and shrubs such as *Capparis sepiaria* and *Ziziphus mauritiana*; common along roadside and in grasslands.
Fl. & Fr.	February to April.
Reference	FBI. 1:101; FUGP. 1: 28; FD. 52; FID. 27; FNER. 28



TINOSPORA Miers

Tinospora cordifolia (Willd.) Miers

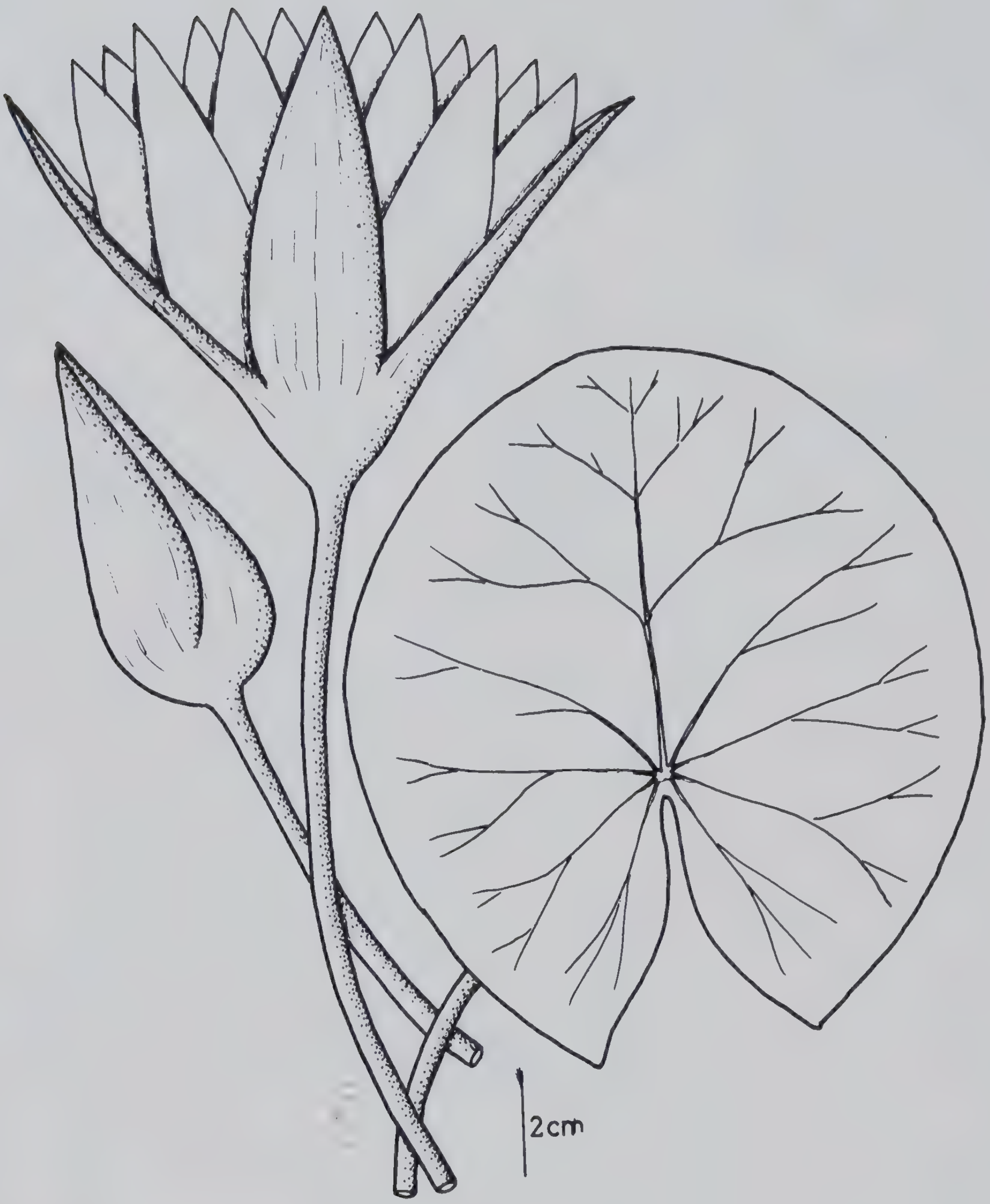
Local name : Belodo

Characteristics : A glabrous, woody climber with corky bark which often peels. Old leafless stems usually with slender thread-like aerial roots hanging from the nodes. Leaves broadly cordate; petiole long. Flowers yellow, in axillary racemes on old, leafless stems, unisexual; stamens 6. Fruit a drupe, red when ripe.

Habitat : Climbing on trees, such as *Acacia* sp. along roadsides and in grasslands.

Fl. & Fr. : January to March.

Reference : FBI. 1:97; FUGP. 1:26; FD. 53; FID. 29; FNER. 30



2. NYMPHAEACEAE

NYMPHAEA L.

Nymphaea nouchali Burm. f.

Synonym : *N. stellata* Willd.

Local name : Kamal

Characteristics : An aquatic herb with floating leaves and rounded rhizome. Leaves orbicular or elliptic, cleft at base, purple beneath. Flowers solitary on long peduncle, showy, white or blue, scented; sepals fleshy, tapering to apex; anthers with long appendages. Fruit a globose berry enclosed by petals and sepals.

Habitat : Open water area, in association with *Nymphoides*, *Najas*, etc. Common during monsoon season.

Fl. & Fr. : August to November.

Reference : FBI. 1:114; FUGP. 1:34; FD. 54; FMD. 50; FK. 1:84

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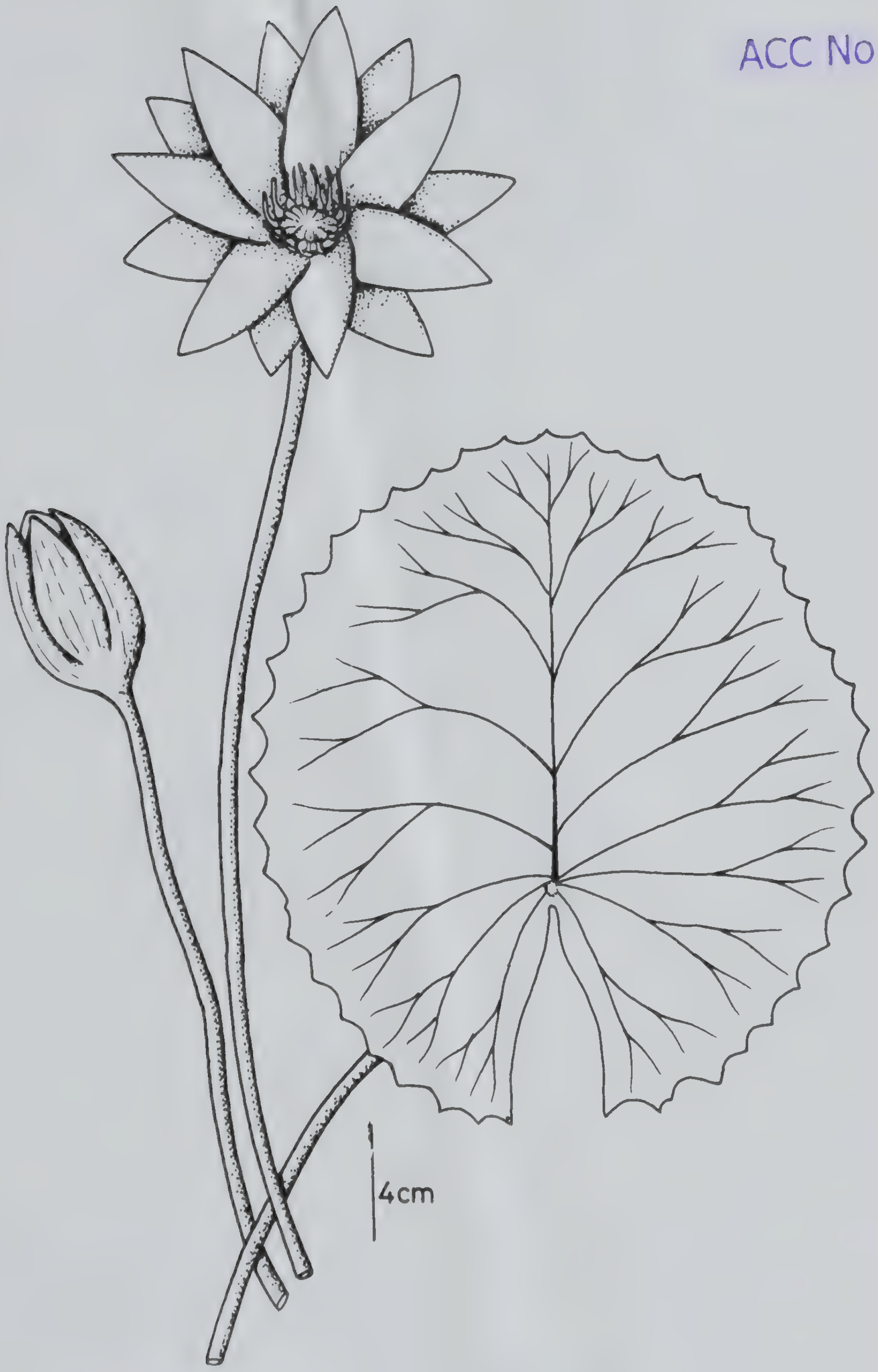


Nymphaea pubescens Willd.

Synonym : *N. lotus* auct. non L.

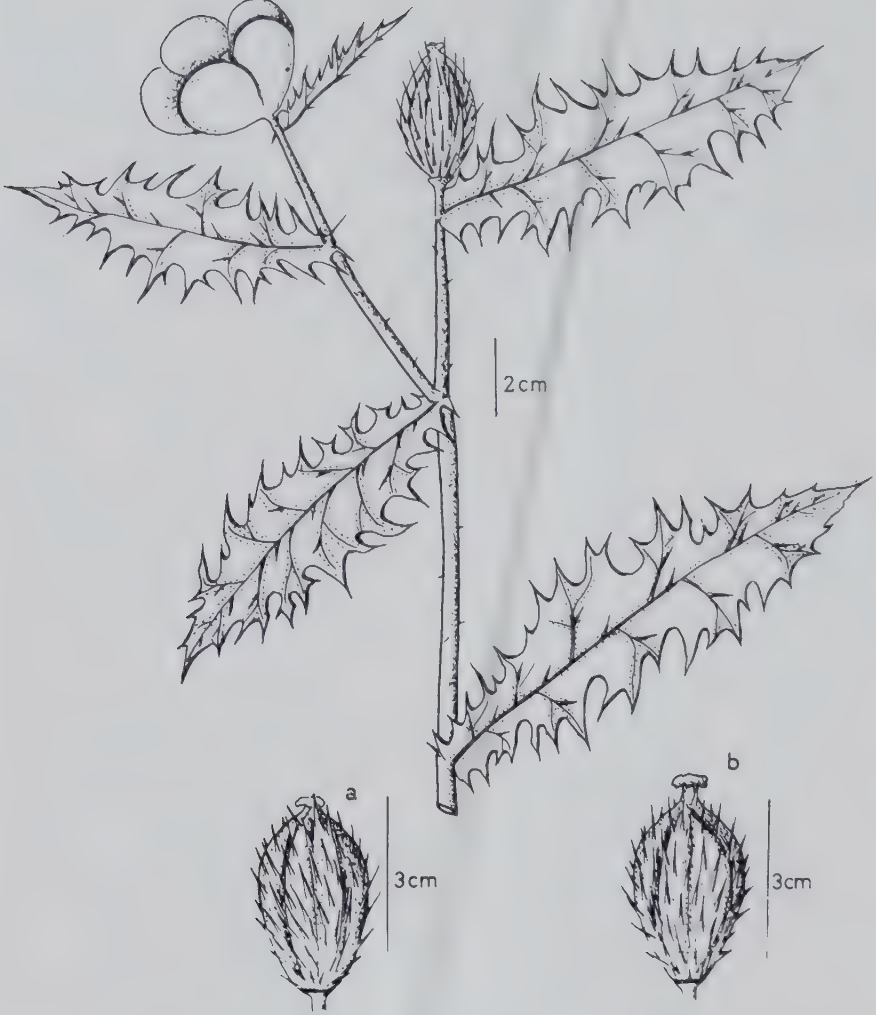
Local name : Kamal

Characteristics : An aquatic herb with floating leaves. Leaves large, sharply toothed on margins, pubescent on lower surfaces. Flowers solitary, large, showy, white or rose; stamens numerous; stigmatic rays with appendages.Fruit a globose, fleshy berry, developing under water. Seeds with white transparent arils.

Habitat : Common in open water area during rainy season.

Fl. & Fr. : August to October.

Reference : FBI. 1:114 p.p.; FUGP. 1:33; FMD. 50; FK. 1:85



3. PAPAVERACEAE

ARGEMONE L.

a. Argemone mexicana L.

Local name : Satyanasi

Characteristics : A prickly herb with yellow latex. Leaves pinnatifid, with sharp spines on margins and veins. Flowers yellow; sepals fall off soon after opening; stamens numerous; style almost absent; stigma 3 to 6-lobed, flattened, red. Fruit a spiny capsule.

Habitat : Common along roadsides and open areas.

Fl. & Fr. : January to May.

Reference : FBI. 1:177; FUGP. 1:36; FD. 55, FID. 30; FNER. 31

b. **Argemone ochroleuca** Sweet

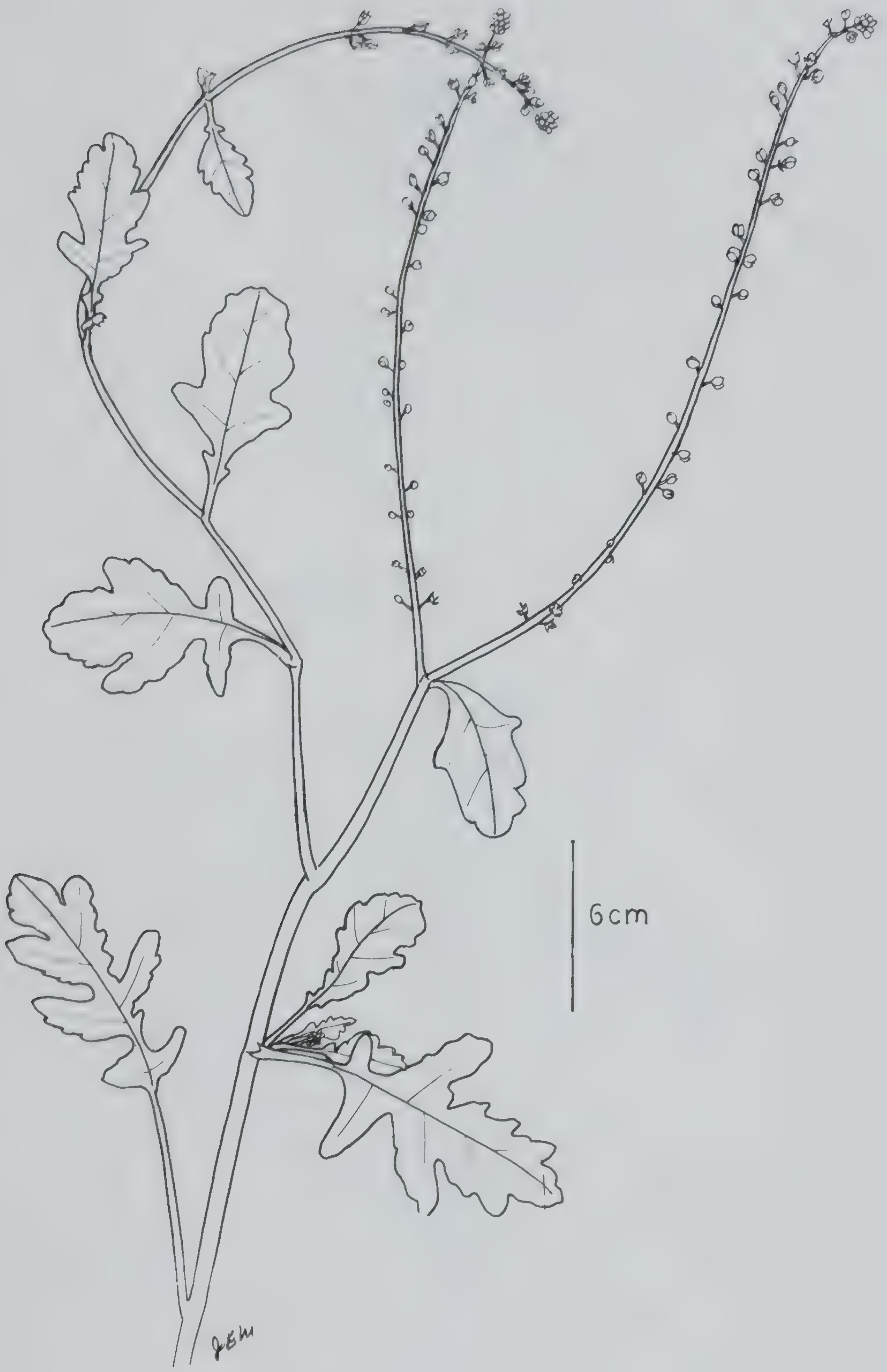
Local name : Satyanasi

Characteristics : Similar in characteristics to *A. mexicana* except whitish flowers with a ca 1 mm long style topped with a dark, red stigma with 5 spreading lobes.

Habitat : Disturbed areas; rare in the park.

Fl. & Fr. : November to April.

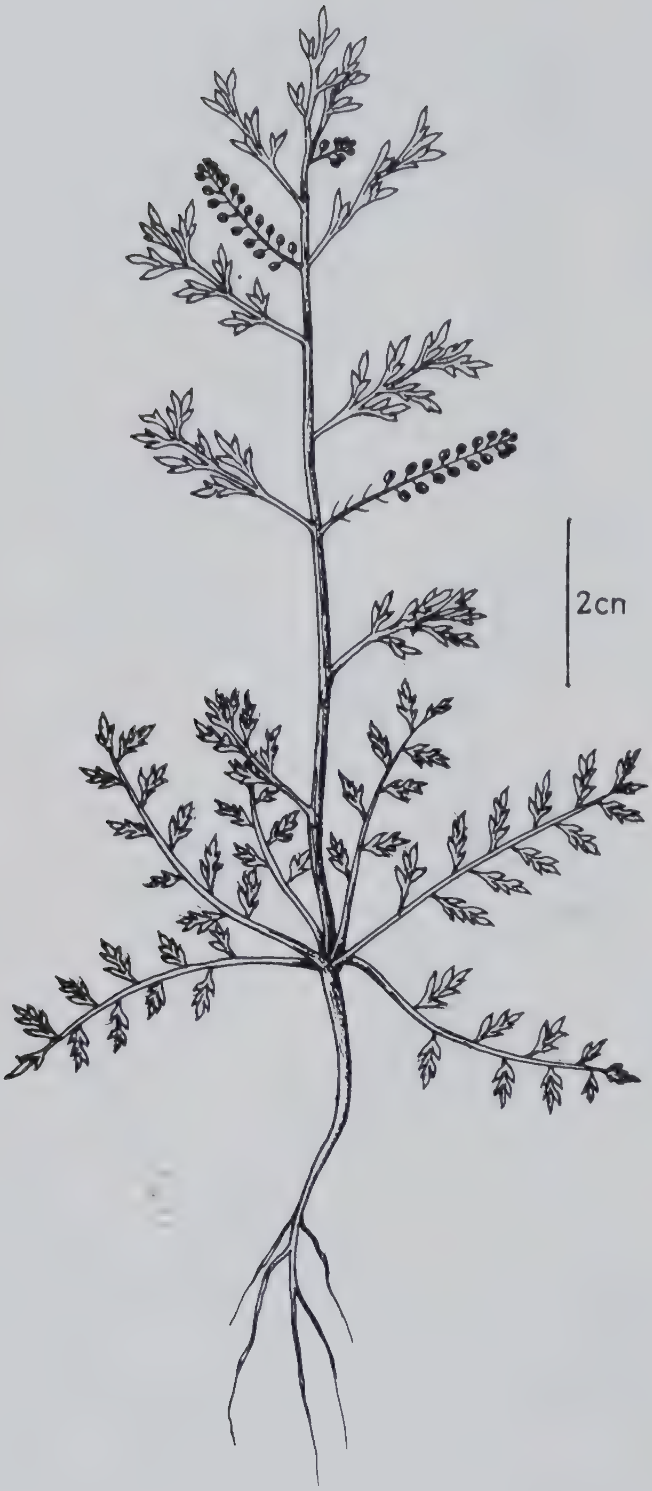
Reference : HFD. 50; FD. 55; FG. 38



4. BRASSICACEAE (CRUCIFERAE)

COCHLEARIA L.

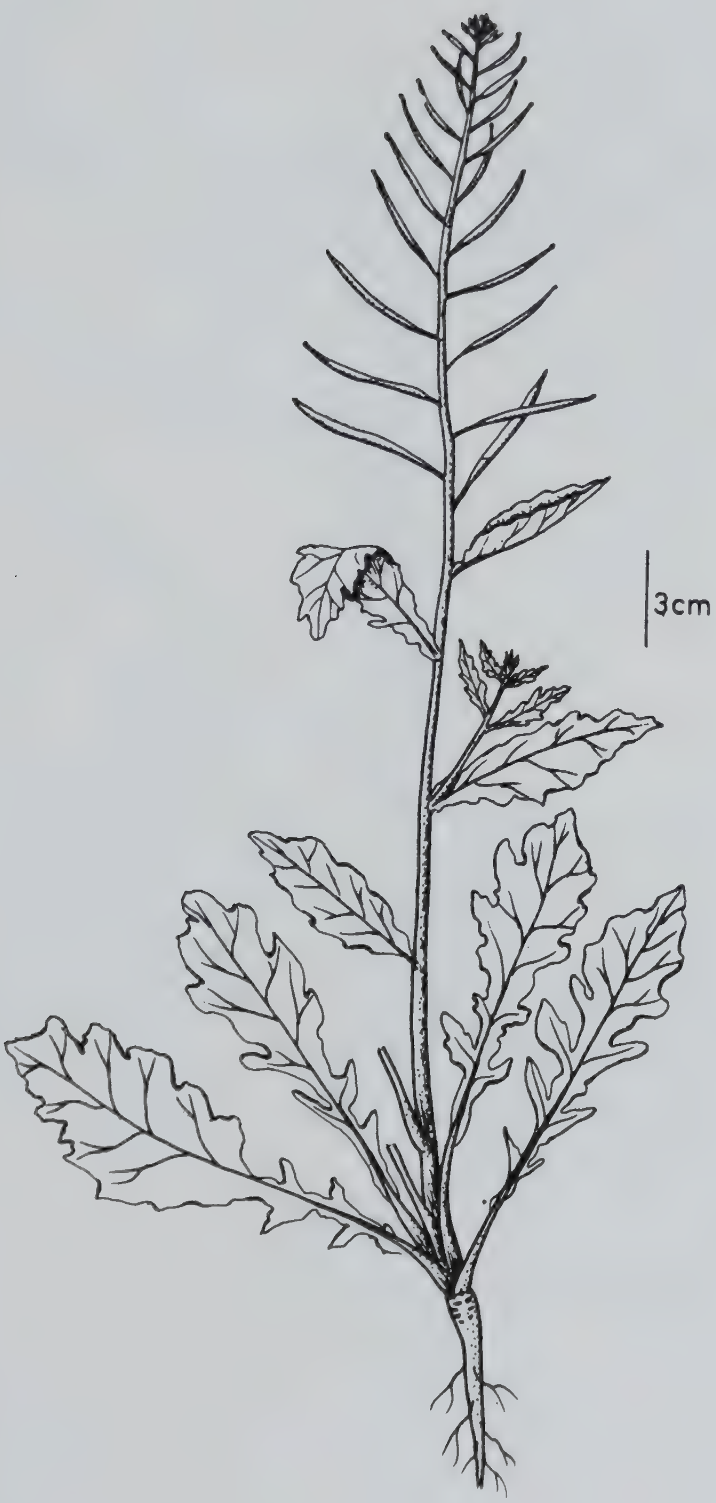
Cochlearia cochlearioides (Roth) Santapau & Mahesh.
Synonym : *C. flava* Buch.-Ham. ex Roxb.
Characteristics : A many-branched, glabrous herb with a well developed tap root. Leaves pinnatifid; lobes toothed. Flowers yellow, in racemes. Fruit a globose pod with numerous rugose seeds.
Habitat : Common in dried, monsoonal pools and moist shady areas.
Fl. & Fr. : In late winter.
Reference : FBI. 1:145; FUGP. 1:41; FD. 59



CORONOPUS L.

Coronopus didymus (L.) Sm.

Synonym	:	*Senebiera pinnatifida* DC.
Characteristics	:	A prostrate or ascending, annual herb, branching from the base. Leaves pinnatifid; basal ones form a rosette. Flowers small, greenish, in axillary racemes. Fruit notched at apex and base, separates into 2 indehiscent pods.
Habitat	:	Shady areas in recently dried, monsoonal pools.
Fl. & Fr.	:	December to March.
Reference	:	FUGP. 1:47; FD. 57; FID. 32; FNER. 40



RORIPPA Scop.
Rorippa indica (L.) Hiern

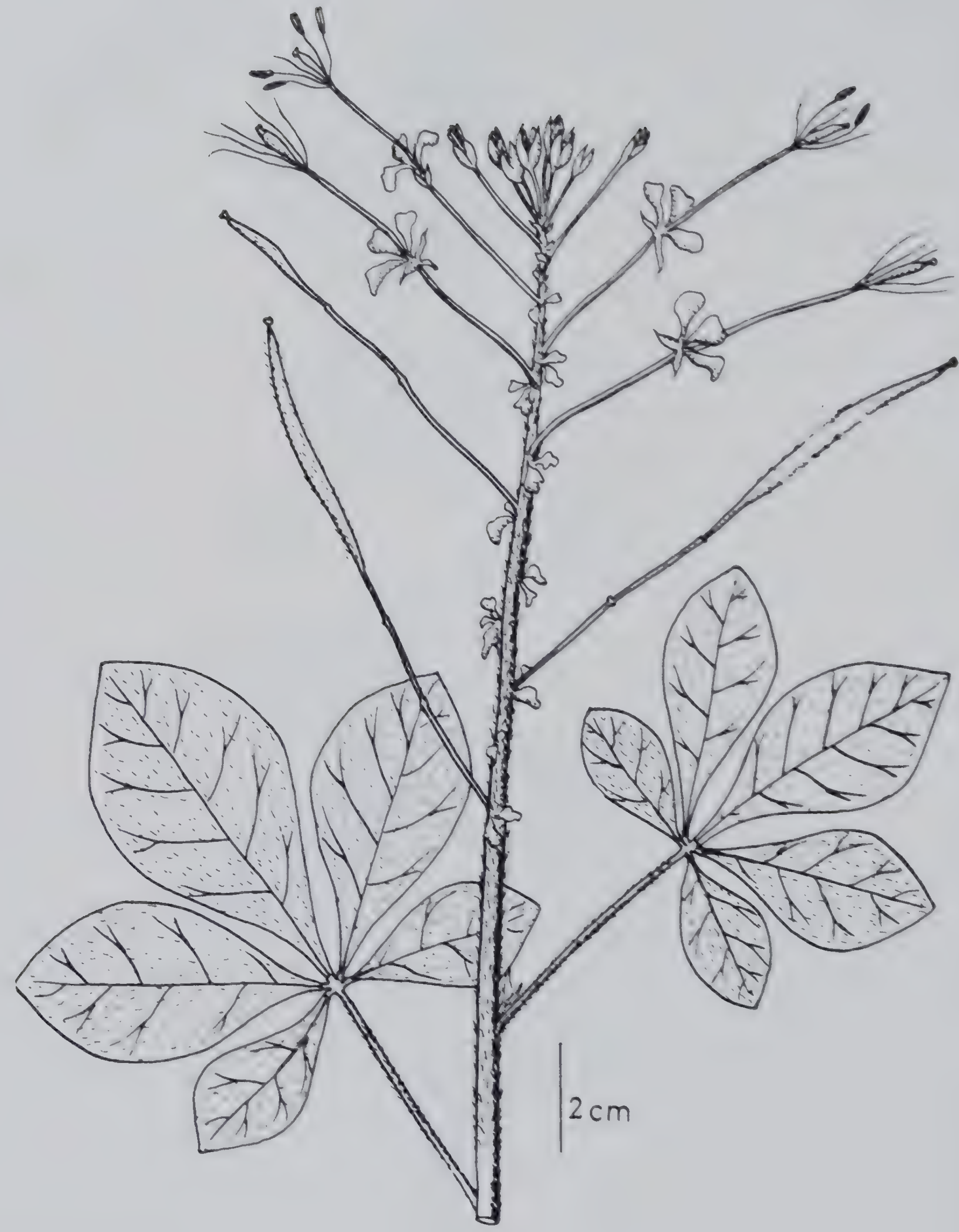
Synonym : *Nasturtium indicum* DC.

Characteristics : An erect, annual herb.Basal leaves in a rosette, pinnatifid, toothed on lobes; upper leaves not as deeply divided as lower ones. Flowers small, yellow or whitish, arranged in long racemes. Fruit a long, narrow, cylindrical pod.

Habitat : Moist, open areas; very rare in the park.

Fl. & Fr. : February to June.

Reference : FBI. 1:134; FUGP. 1:39; FD. 58

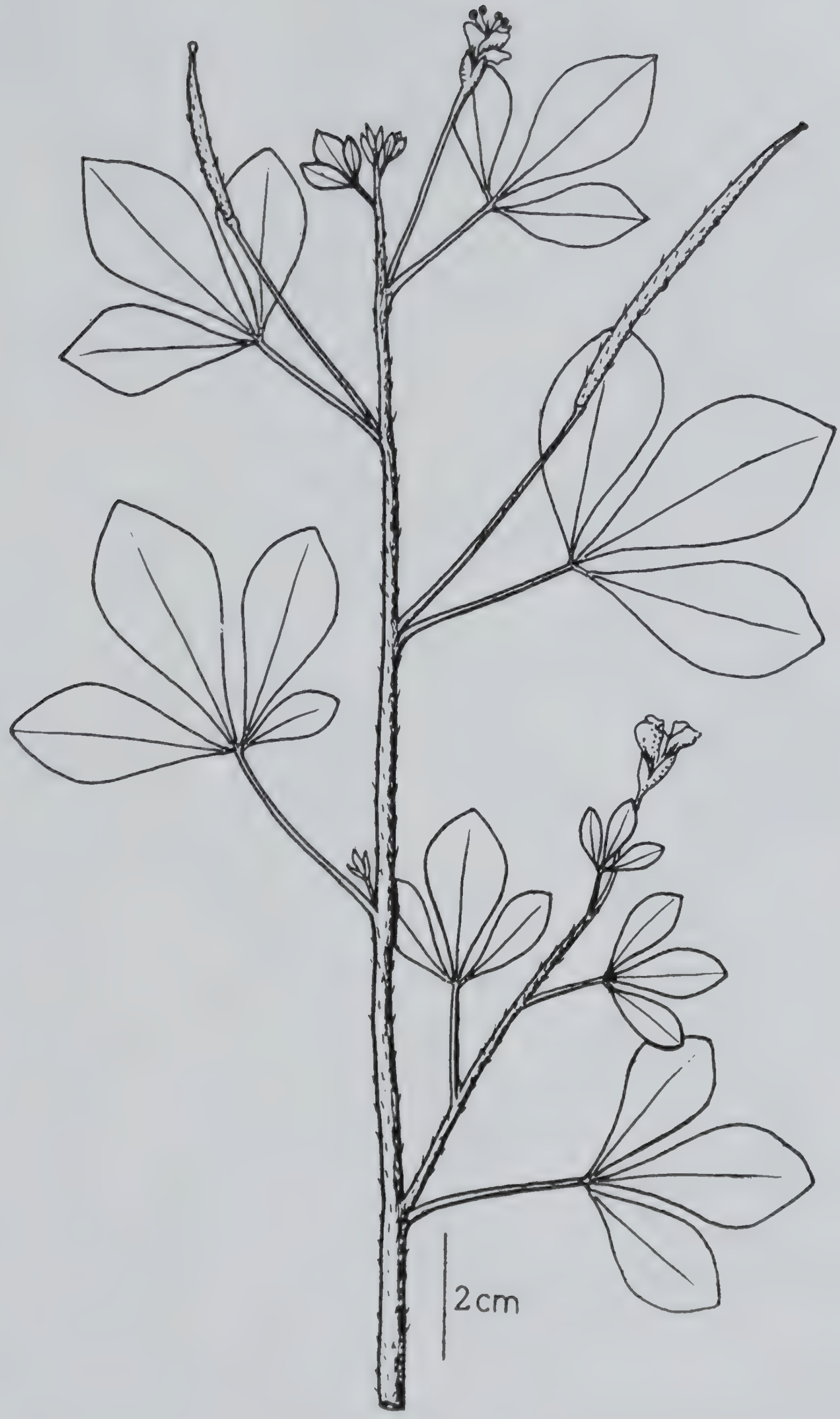


5. CLEOMACEAE

CLEOME L.

Cleome gynandra L.

Synonym	:	*Gynandropsis pentaphylla* (L.) DC.
Characteristics	:	An erect herb with glandular hairs on branches. Leaves palmately 5-lobed; petioles long, hairy. Flowers pinkish, arranged in terminal racemes; ovary elevated on a 1.5 cm long androgynophore. Fruit a cylindrical capsule, up to 9 cm long.
Habitat	:	Found along roadsides during rainy season.
Fl. & Fr.	:	July to September.
Reference	:	FBI. 1:171; FUGP. 1:51; FID. 40; FNER. 35



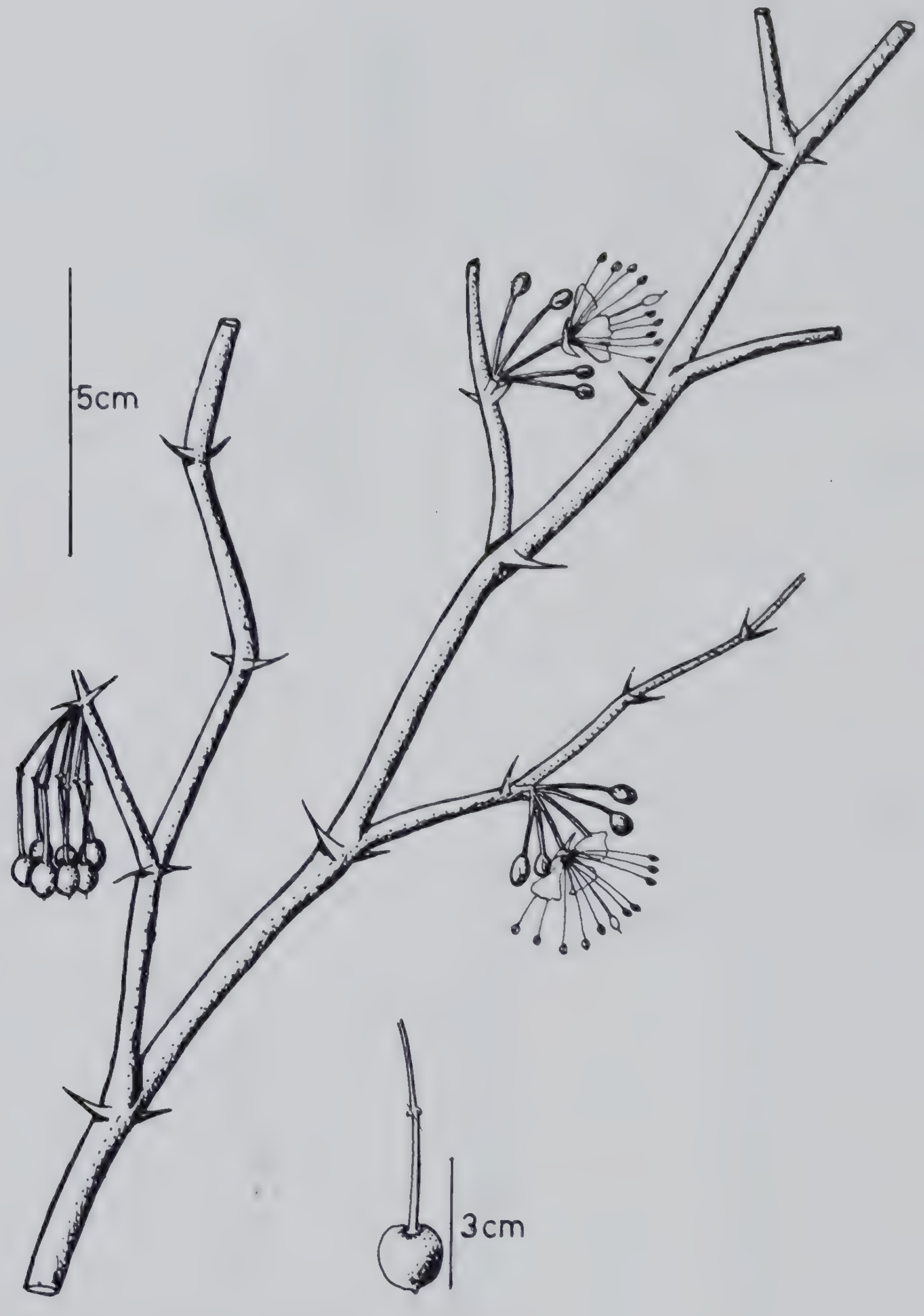
Cleome viscosa L.

Characteristics : A glandular, hairy herb, branching from the basal nodes. Leaves palmately 3 to 5 lobed; petioles long, glandular-hairy, grooved. Flowers yellow, in lax racemes; pedicel 2 cm long; ovary not elevated on an androgynophore. Fruit a cylindrical, glandular capsule with a long, persistent style.

Habitat : Frequently seen along roadside during rainy season.

Fl. &Fr. : July to September.

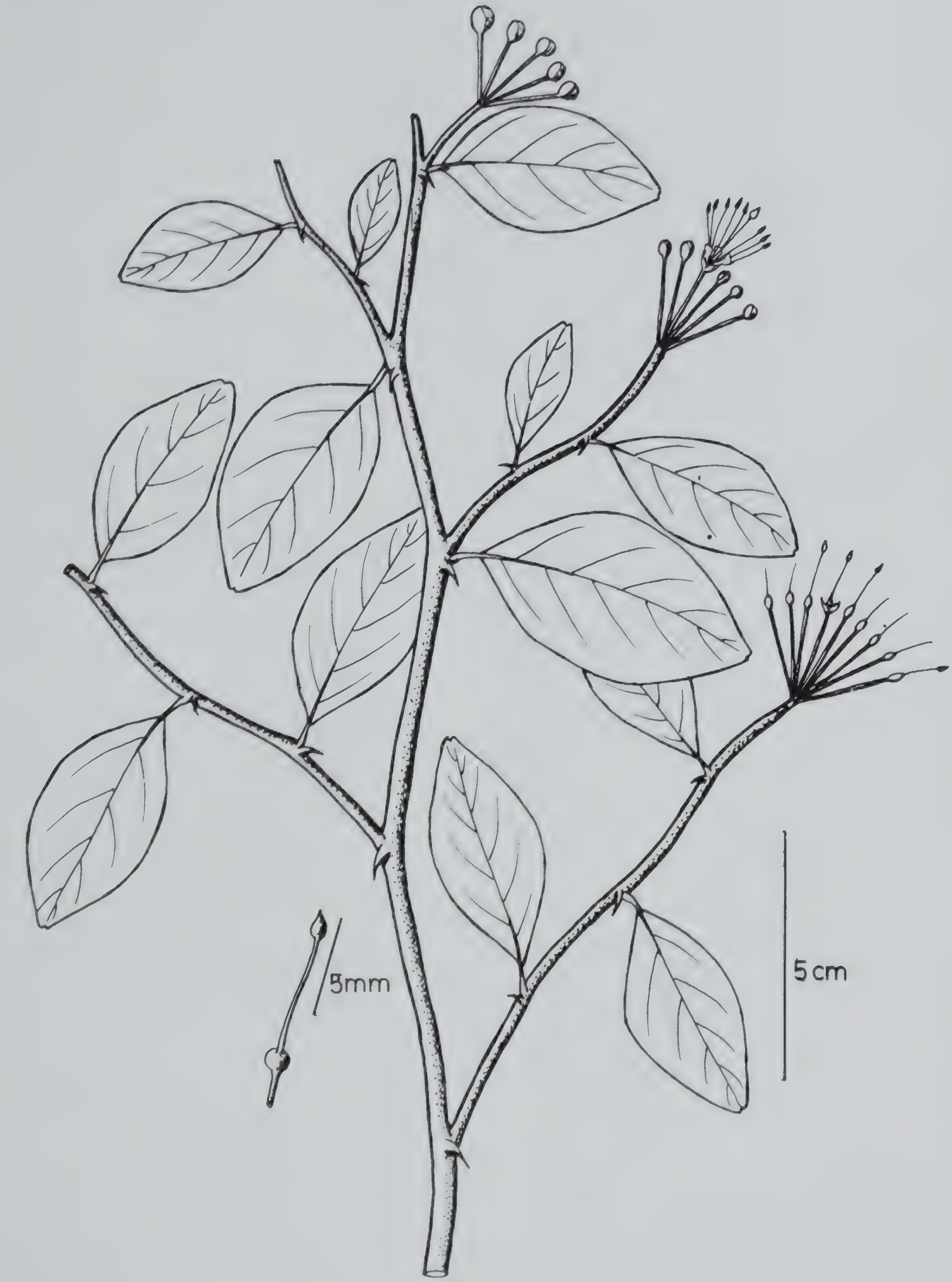
Reference : FBI. 1:170; FUGP. 1:50; FD. 63; FID. 42; FNER. 37



6. CAPPARACEAE (CAPPARIDACEAE)

CAPPARIS L.

Capparis decidua (Forsk.) Edgew.
Synonym : *C. aphylla* Roth
Local name : Karel
Characteristics : A many branched, leafless shrub or small tree; branches green, spinous. Flowers red, in terminal corymb-like fascicles; stamens many;ovary elevated on a gynophore. Fruit a subglobose berry, red when ripe.
Habitat : Dry, sandy soil.
Fl. : March-April and September-October; Fr : May-June and November-December.
Reference : FBI. 1:174; FUGP. 1:53; FD. 65; FID.37; FNER.33



Capparis sepiaria L.

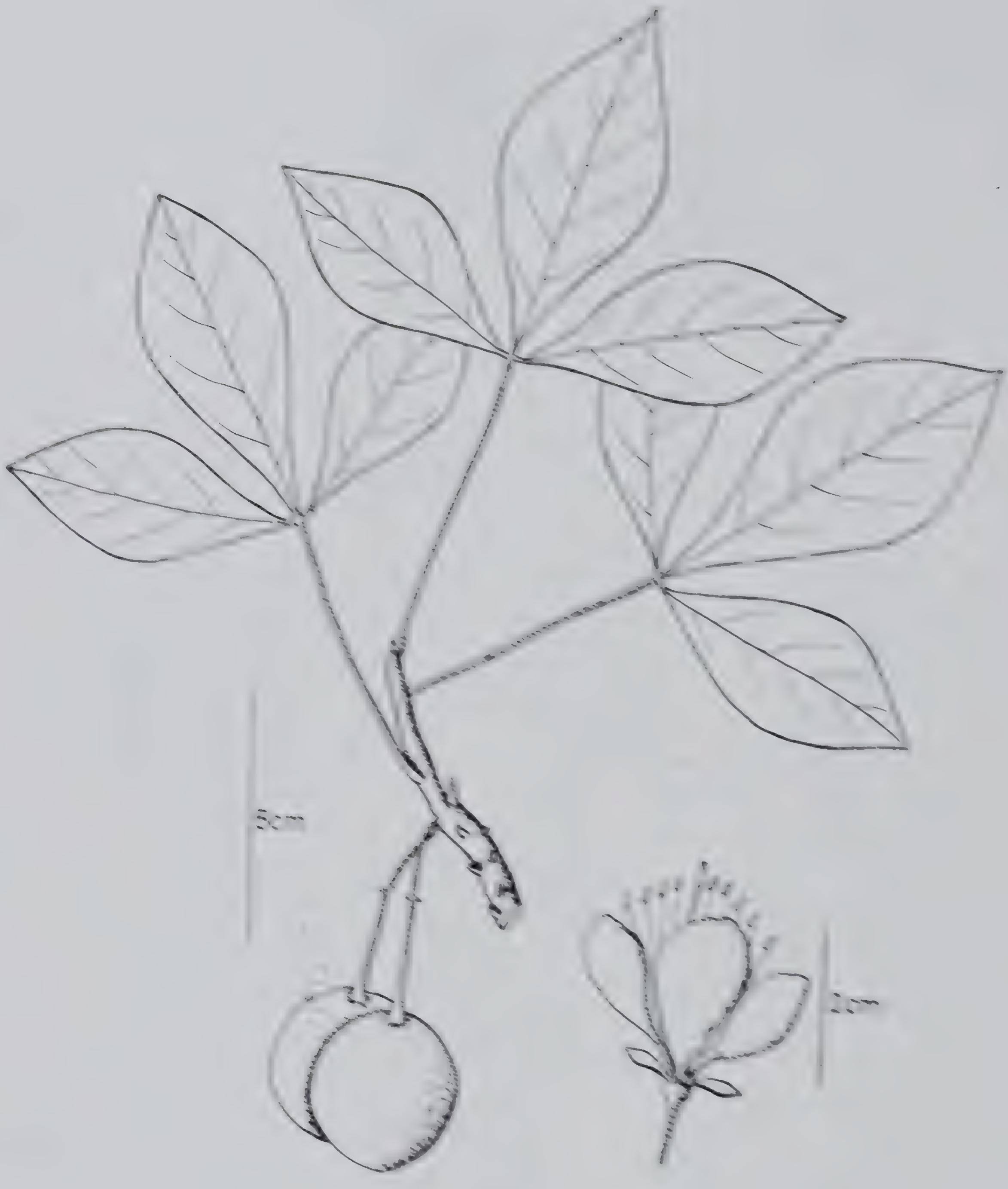
Local name : Heese

Characteristics : A branched, spreading shrub with recurved thorns. Leaves ovate-lanceolate or elliptic. Flowers white, arranged in terminal umbel; ovary elevated on a stipe (gynophore). Fruit a rounded berry, black when ripe.

Habitat : Common in thorny scrub jungle with other shrubs.

Fl.& Fr. : March to July.

Reference : FBI. 1:177; FUGP. 1:53; FD. 65; FNER. 34



CRATAEVA L.

Crataeva magna (Lour.) DC.

Synonyms : *C. religiosa* auct. non Forst.
C. nurvala Buch.-Ham.

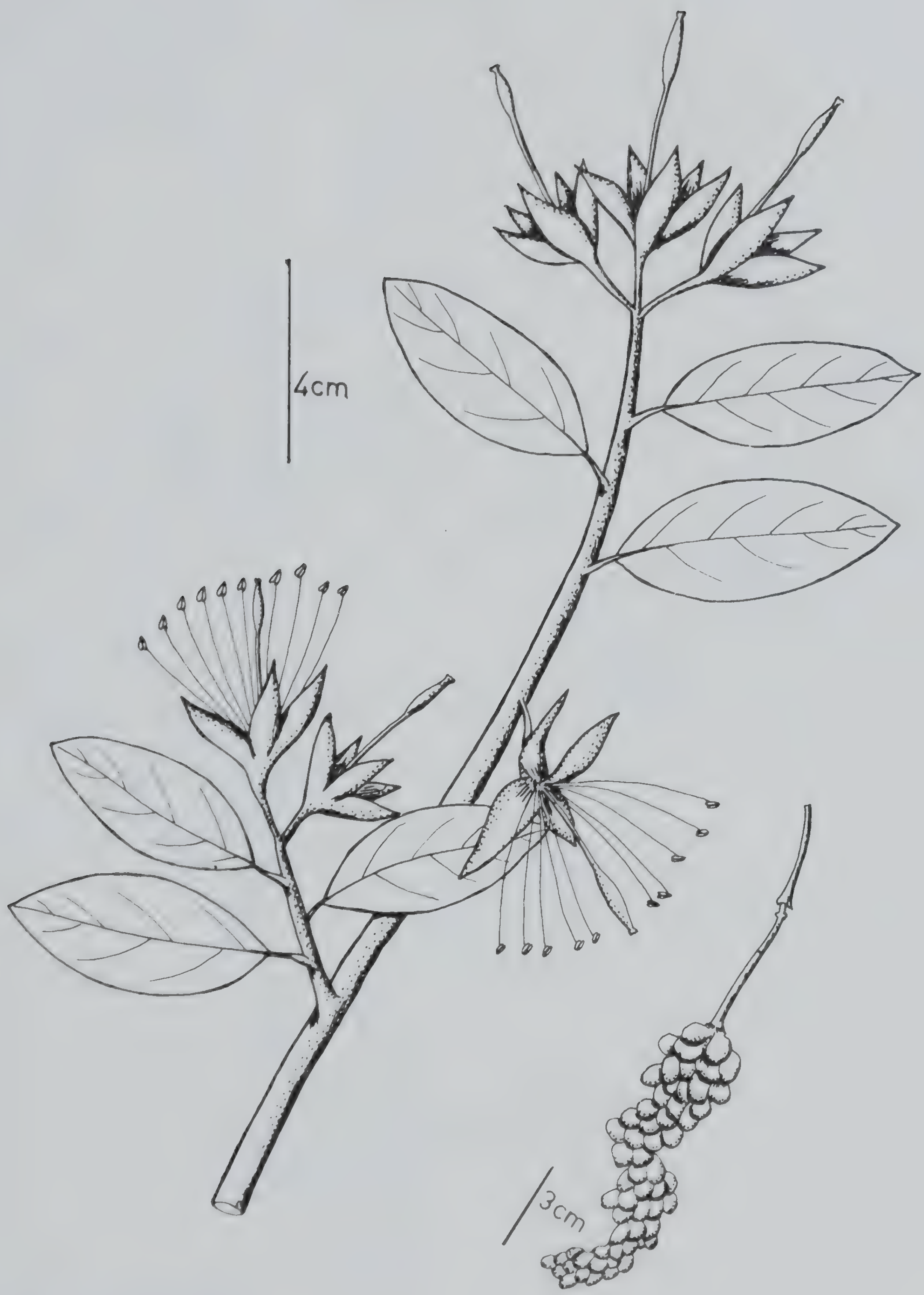
Local name : Barna

Characteristics : A medium-sized deciduous tree without thorns. Leaves 3-foliolate, with long petioles. Flowers yellow, on a long pedicel, arranged in clusters. Fruit a berry with thick pericarp, borne on a woody gynophore, red when ripe.

Habitat : Occasionally found along roadsides and in grasslands.

Fl. : April to May; Fr. — May to July.

Reference : FBI. 1:172; FUGP. 1:52; FD. 65; FTN. 1, 1:15



MAERUA Forsk.

Maerua oblongifolia (Forsk.) A. Rich.

Synonym : *M. arenaria* Hook. f. & Thoms.

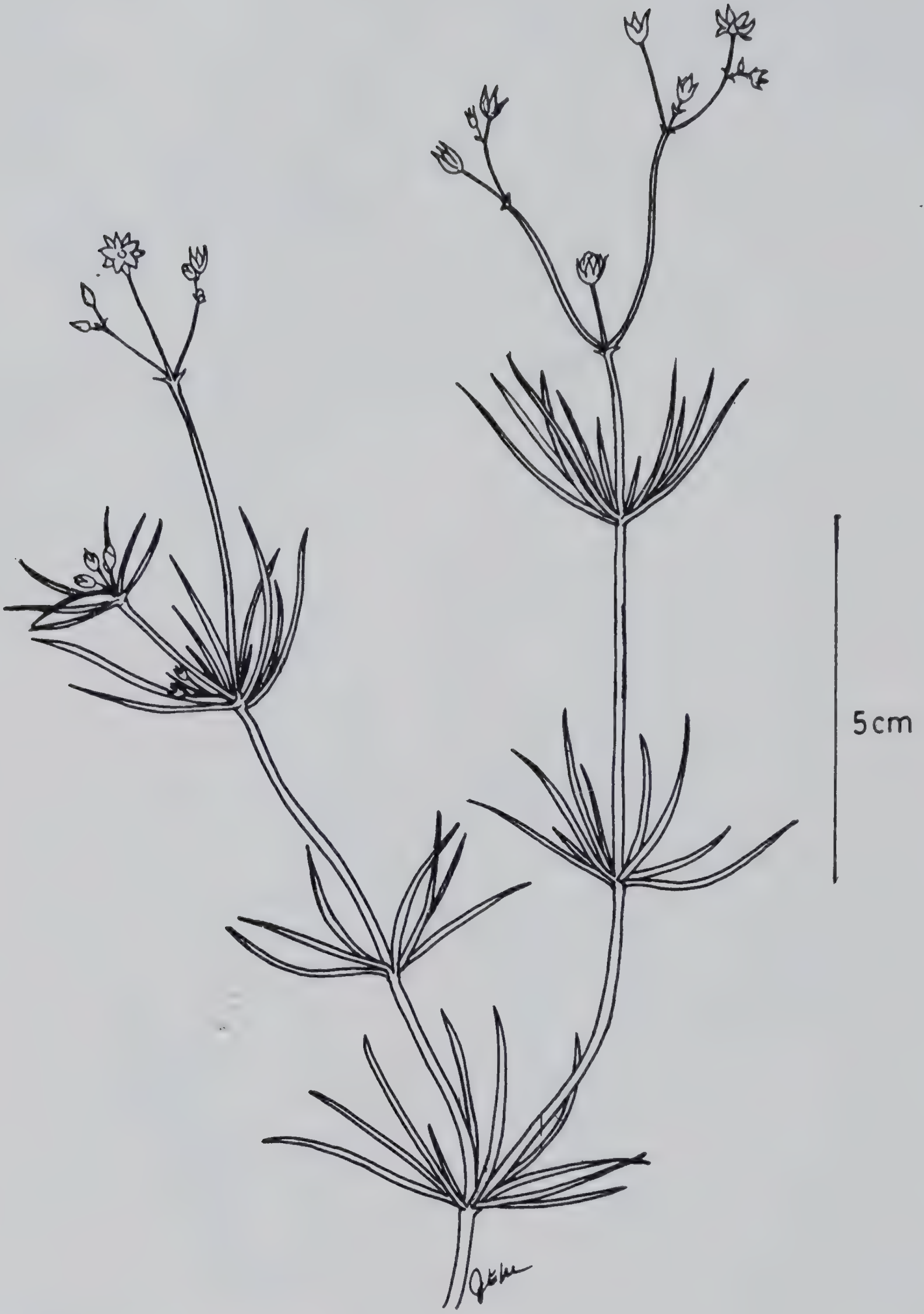
Local name : Jangli jalebi

Characteristics : A woody straggling shrub with leathery leaves. Flowers white; stamens many; ovary elevated on a 2.5 cm long gynophore. Fruit a long, twisted berry with deep constrictions between seeds.

Habitat : Commonly found along roadsides straggling over other shrubs.

Fl. & Fr. : December to February.

Reference : FBI. 1:171; FUGP. 1:51; FID. 43; FNER. 38

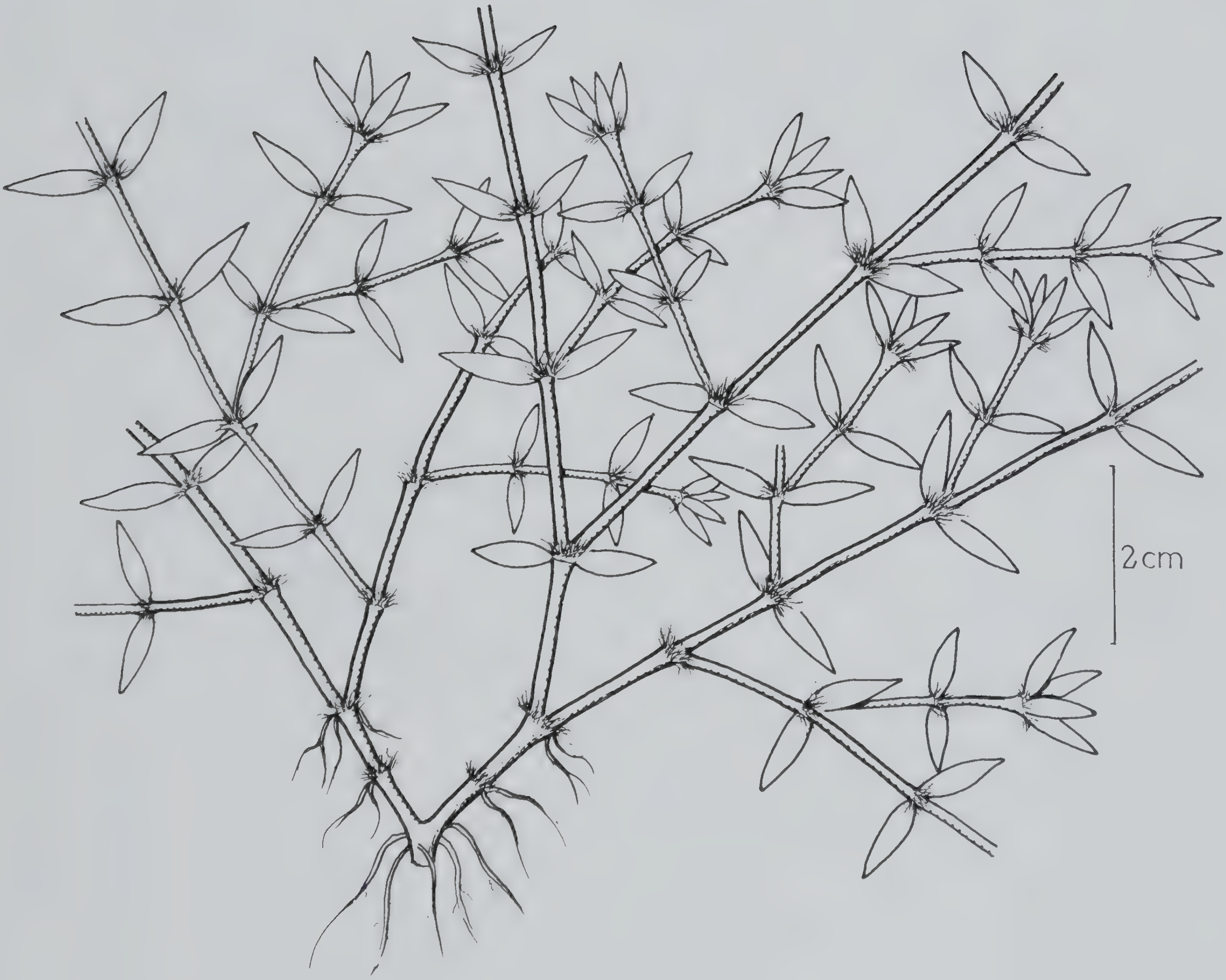


7. CARYOPHYLLACEAE

SPERGULA L.

Spergula arvensis L.

Characteristics : An erect, branched, annual herb. Leaves opposite, linear, less than 1 cm wide. Flowers white, in few flowered, terminal inflorescence. Fruit a subglobose capsule, splitting into 5 valves. Seeds numerous.
Habitat : Common in moist, shady areas.
Fl. & Fr. : December to March.
Reference : FBI. 1:243; FUGP. 1:67; FD. 69; FID. 49; FNER. 51

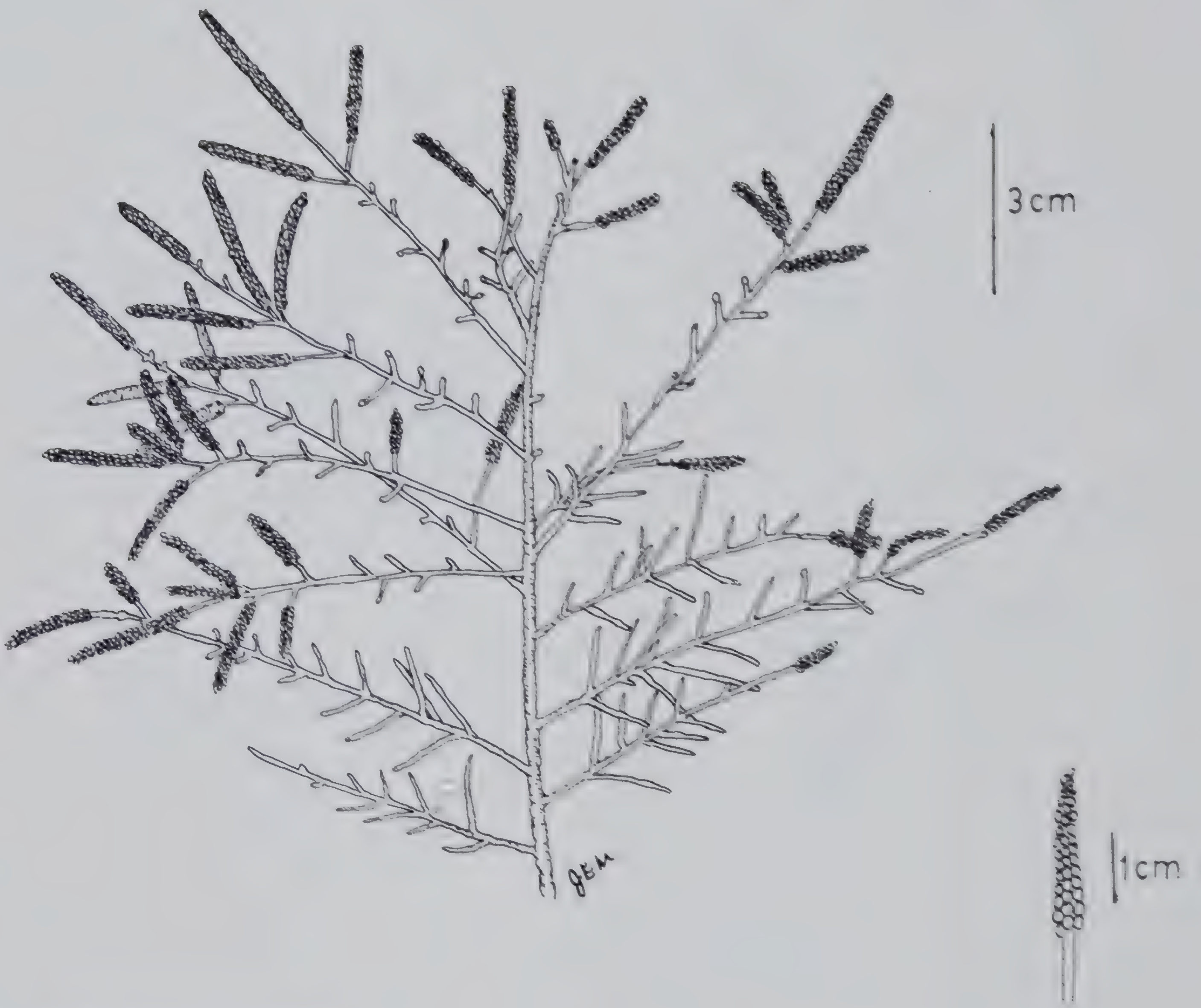


8. PORTULACACEAE

PORTULACA L.

Portulaca quadrifida L.

Characteristics	:	A prostrate or ascending herb, rooting from the nodes. A ring of silky hairs present on each node of the stem. Leaves 1.0 to 1.3 cm long, sessile, opposite, fleshy, ovate-lanceolate. Flowers yellow, solitary; stamens 8 to 12. Fruit a capsule with several black seeds.
Habitat	:	Shallow ditches and dried depressions; not common.
Fl. & Fr.	:	September to January.
Reference	:	FBI. 1:247; FUGP. 1:70; FD. 70; FID. 52; FNER. 53



9. TAMARICACEAE

TAMARIX L.

Tamarix aphylla (L.) Karst.

Synonym : *T. articulata* Vahl

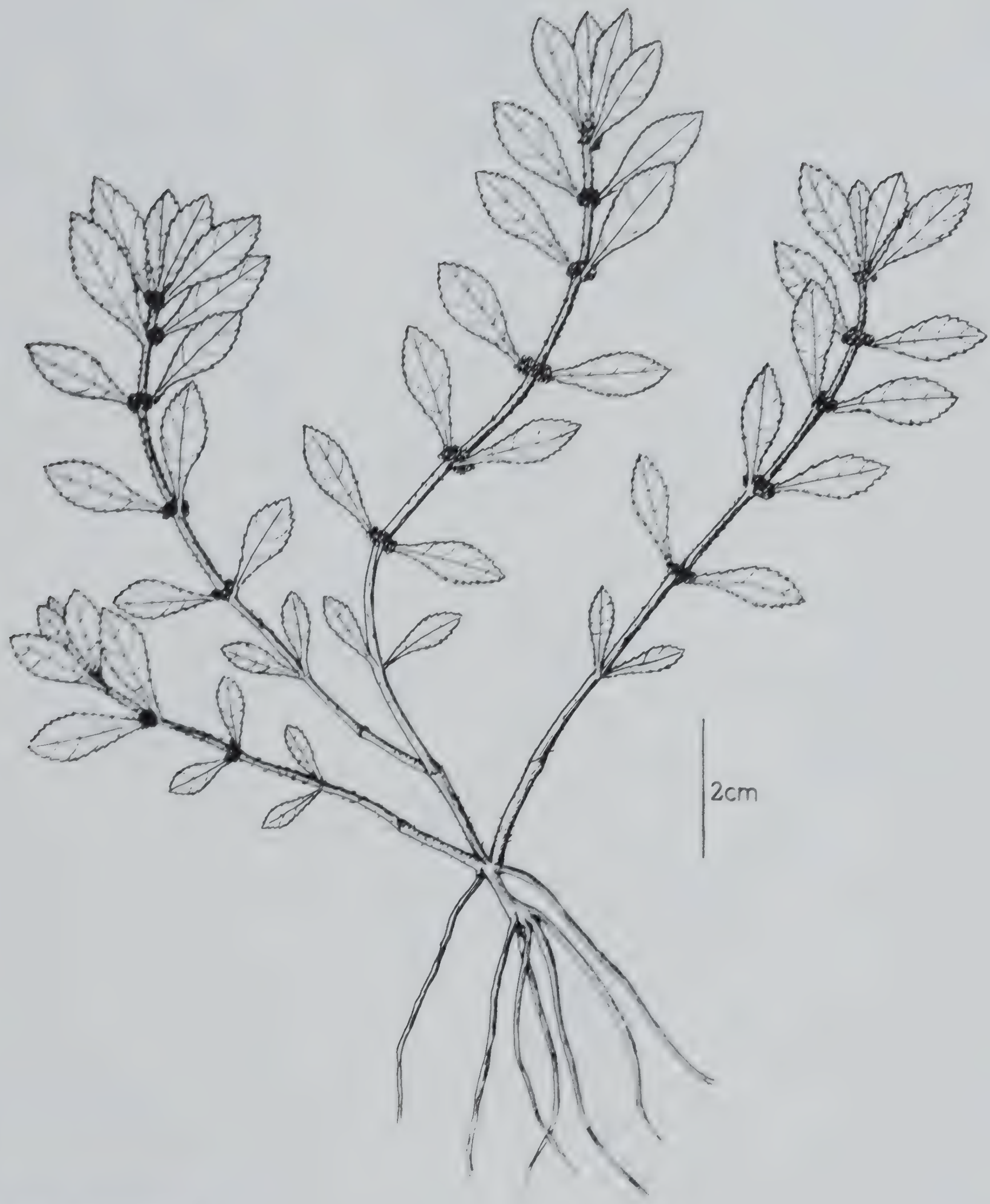
Local name : Jhavu

Characteristics : A medium sized, conifer-like tree. Leaves minute, scale-like, with a sheathing base. Flowers pinkish, in spikes arranged in panicles; bracts scale-like.

Habitat : Common in open areas with saline, sandy soil.

Fl. & Fr. : July to December.

Reference : FBI. 1:249; FUGP. 1:72; FD. 73; FID. 55; FNER. 55

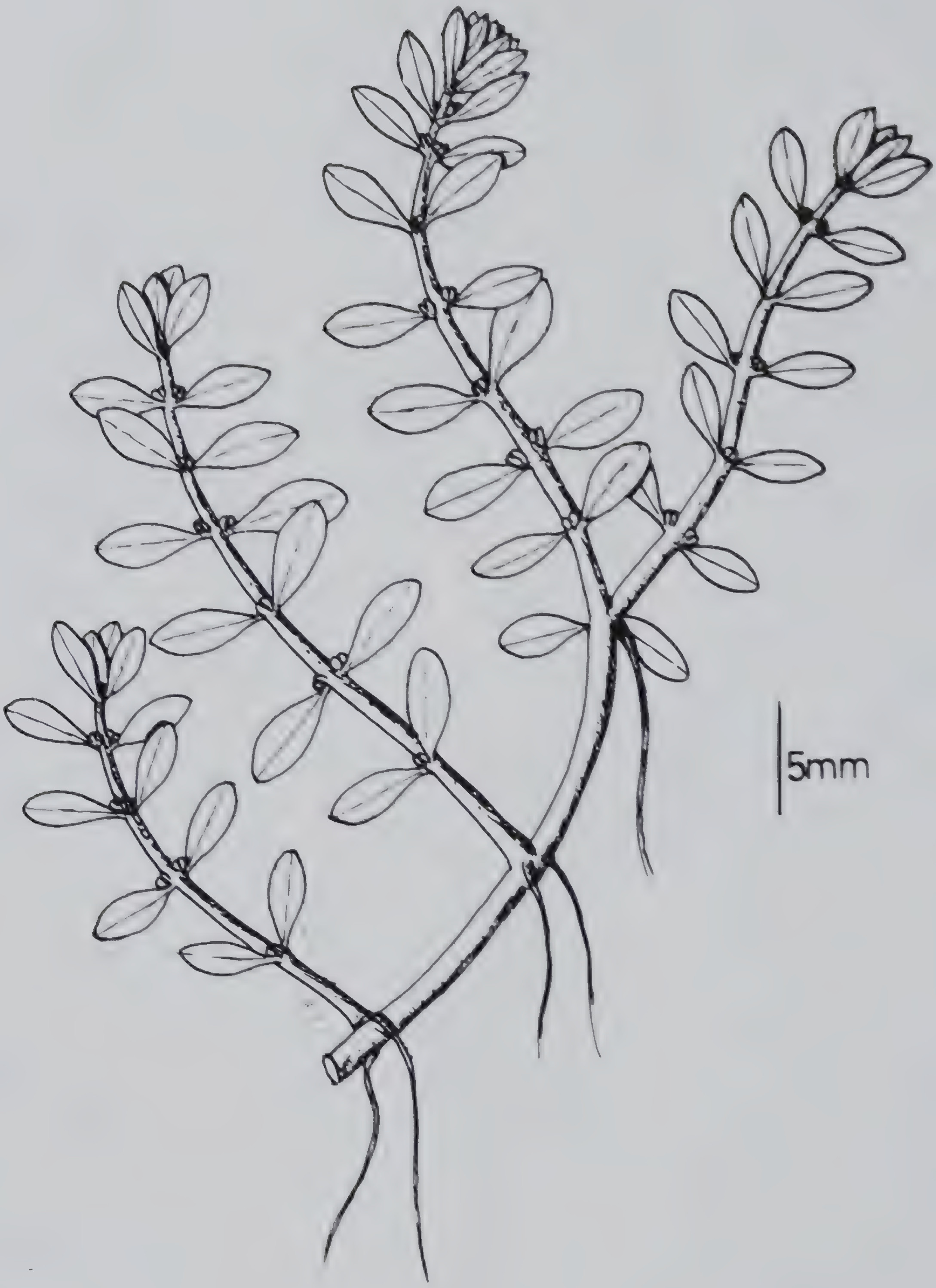


10. ELATINACEAE

BERGIA L.

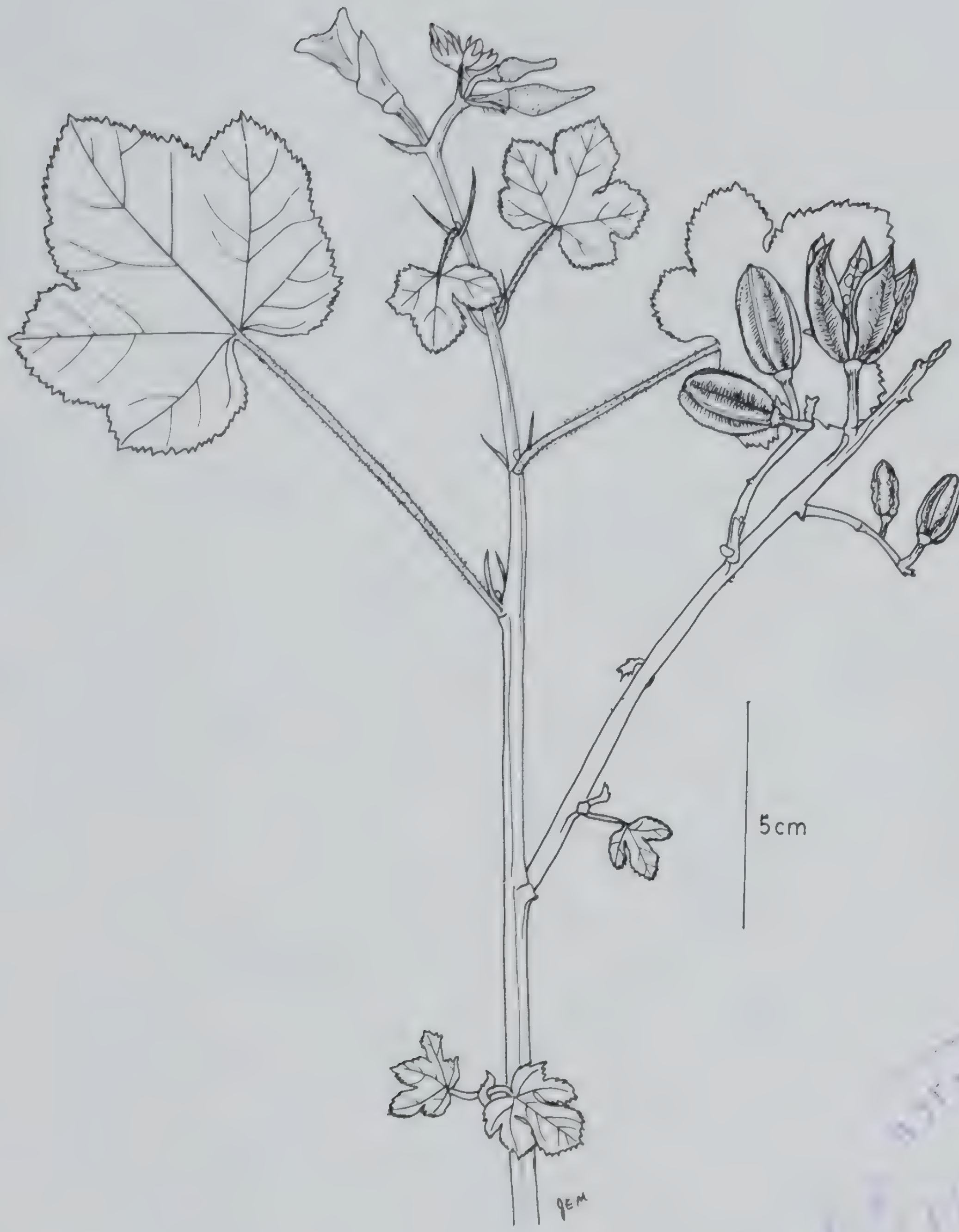
Bergia ammannioides Roxb.

Characteristics :	An erect or decumbent, branching herb. Leaves opposite, oblong-lanceolate, tapering to a short petiole at the base, 1.5 to 3.0 cm long; margins sharply toothed. Flowers reddish, in dense, axillary clusters. Fruits subglobose, 5-celled. Seeds minute, numerous.
Habitat :	Mudflats of monsoonal pools; not common.
Fl. & Fr. :	October to March.
Reference :	FBI. 1:251; FUGP. 1:73; FD. 72; FID. 57; FNER. 57



ELATINE L.
Elatine triandra Schk.

Synonym : *E. americana* Arn.
Characteristics : A very small, tender, prostrate, creeping herb. Stem many branched, rooting at aerial nodes. Leaves opposite, ovate-lanceolate, less than 1 cm long; margin entire. Flowers minute, inconspicuous, solitary, axillary. Fruits thin walled capsules.
Habitat : Mudflats of monsoonal pools; rare.
Fl. & Fr. : October to December.
Reference : FBI. 1:250



BOTANIC GARDENS
LALBAGH, BANGALORE-4
5031
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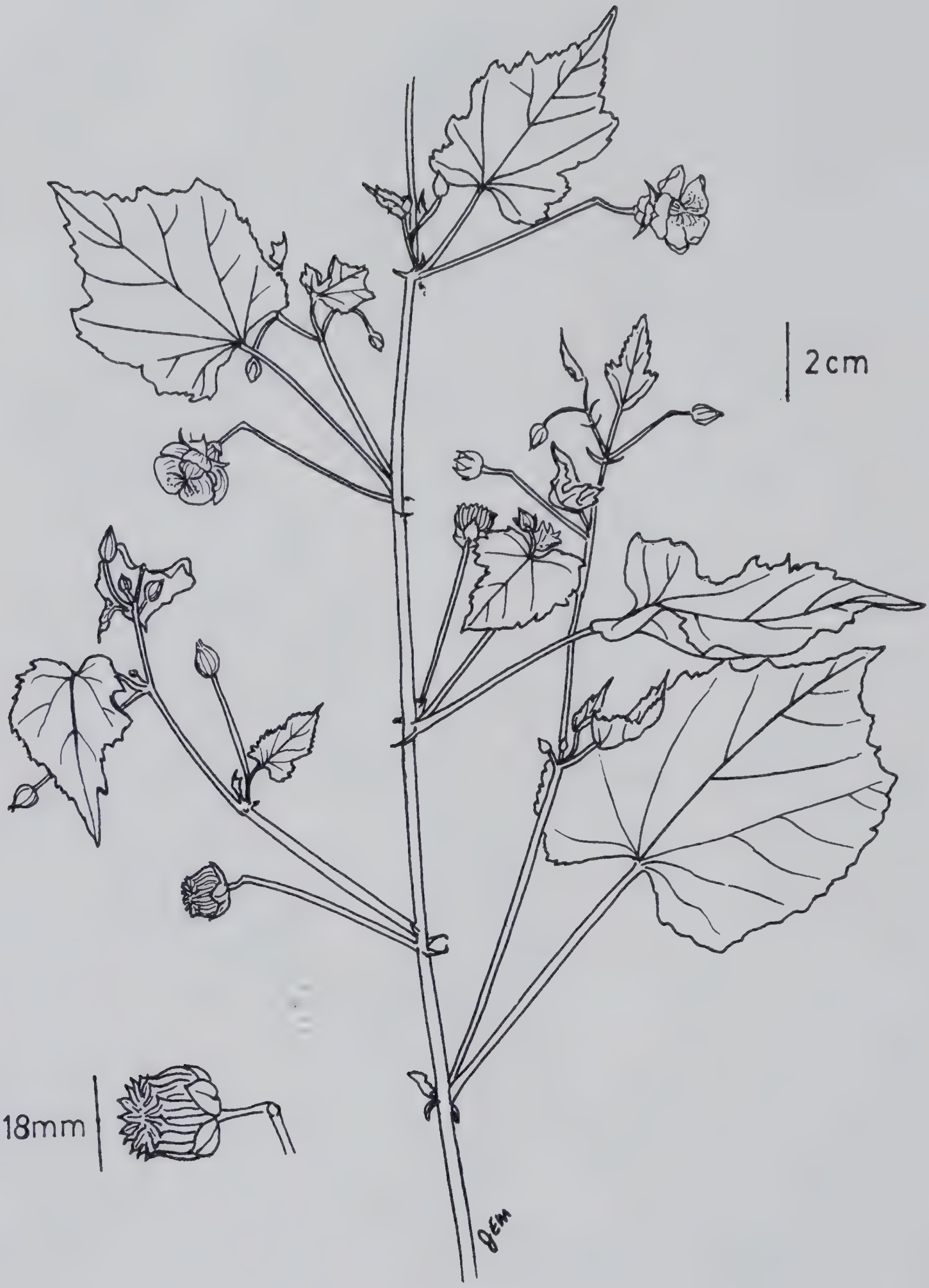
11. MALVACEAE

ABELMOSCHUS Medic.
Abelmoschus ficulneus (L.) Wt. & Arn.

Synonym : *Hibiscus ficulneus* L.
Local name : Jangli bhindi
Characteristics : An erect herb or undershrub usually with pink shaded stems. Leaves with long petioles, 3 to 5-lobed, toothed at margin. Flowers white or pink shaded, in terminal racemes; pedicels shorter than petioles; epicalyx deciduous; calyx spathe-like, splitting at one side. Fruit a 5-lobed capsule, dehiscing into 5 compartments at maturity. Seeds black.
Habitat : Common along roadsides during rainy season.
Fl. & Fr. : July to December.
Reference : FBI 1:340; FHD. 148, FK. 1:243



ABUTILON Mill.

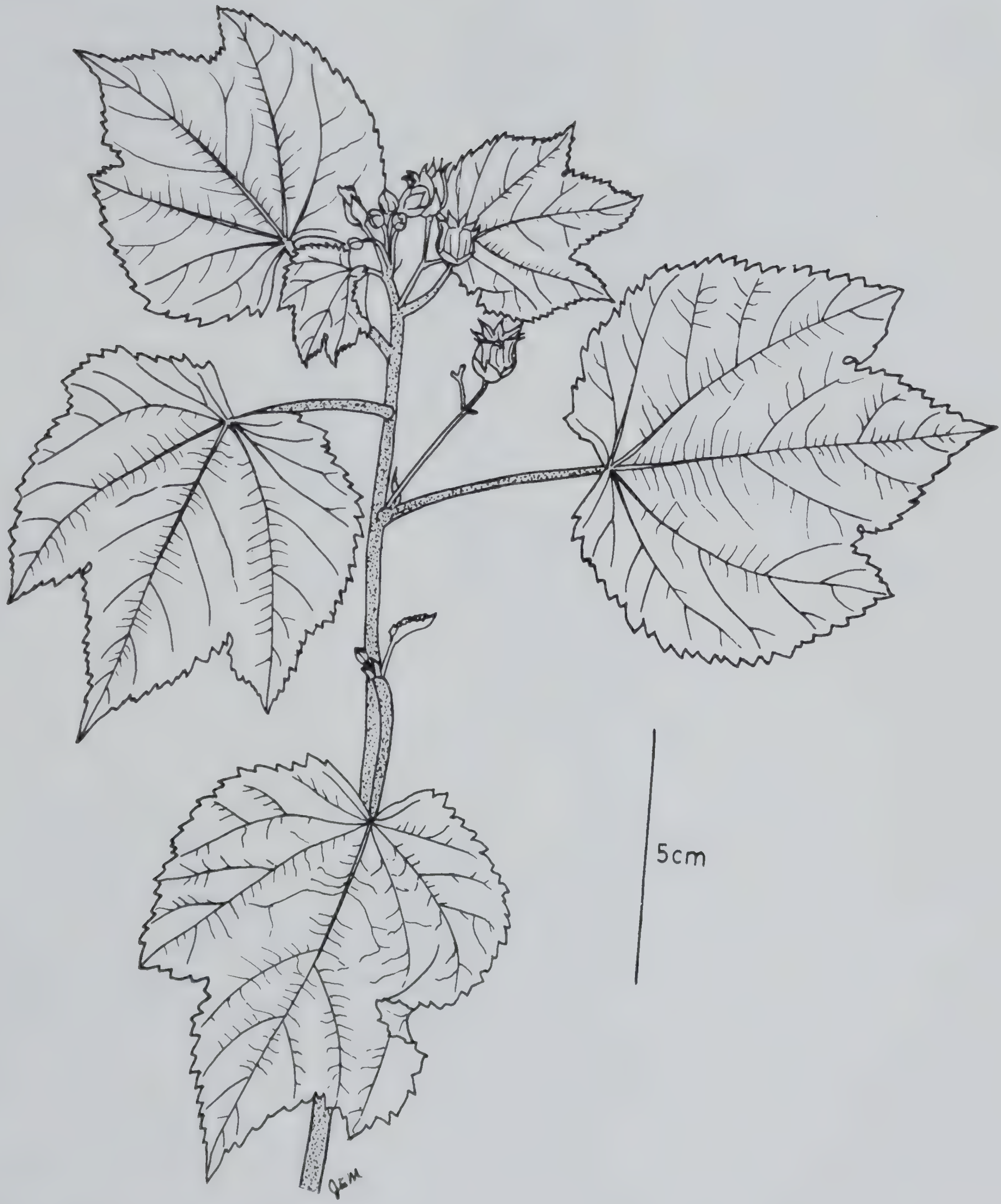
Abutilon indicum (L.) Sweet

Characteristics : A woody, hairy, undershrub up to 1.5 m high. Leaves deeply cordate; margin toothed. Flowers orange-yellow; pedicels 2.5 to 5 cm long, jointed near the top. Fruit a schizocarp with more than 15 carpels, all of which with a short beak.

Habitat : Commonly found along roadsides.

Fl. & Fr. : Throughout the year.

Reference : FBI 1:326; FUGP 1:83; FD. 75; FID. 61; FNER. 60



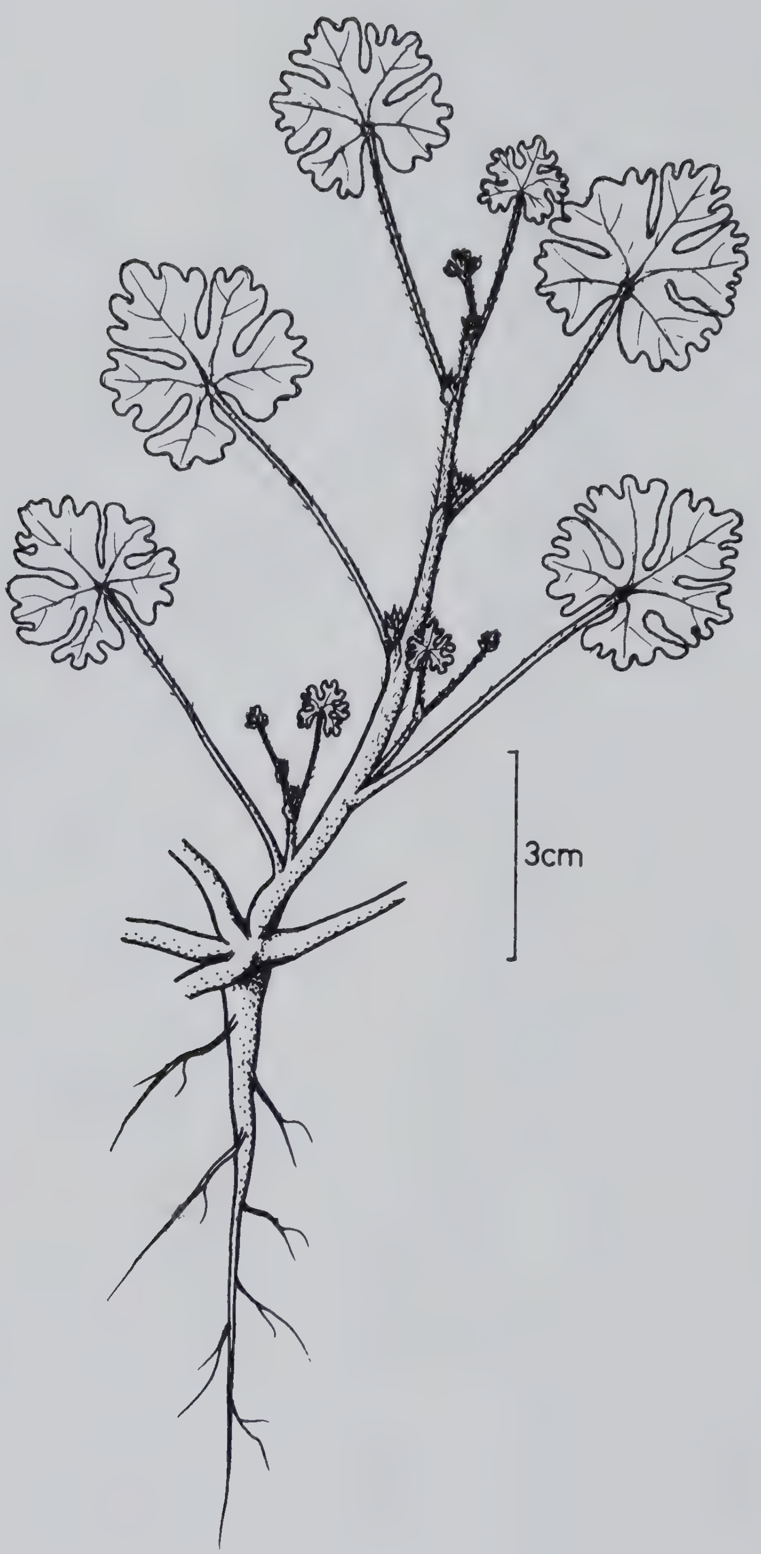
Abutilon ramosum Guill. & Perr.

Characteristics : An erect, branching undershrub, up to 1.5 m high. Stem glandular hairy. Leaves ovate, cordate at the base, pointed at apex, toothed at margin. Flowers orange-yellow, usually 2 on a peduncle; pedicels jointed near the apex. Fruit, a schizocarp; carpels 10, hairy, each with a spreading awn.

Habitat : Along roadside near Keoladeo Temple; not common.

Fl. & Fr. : July to December.

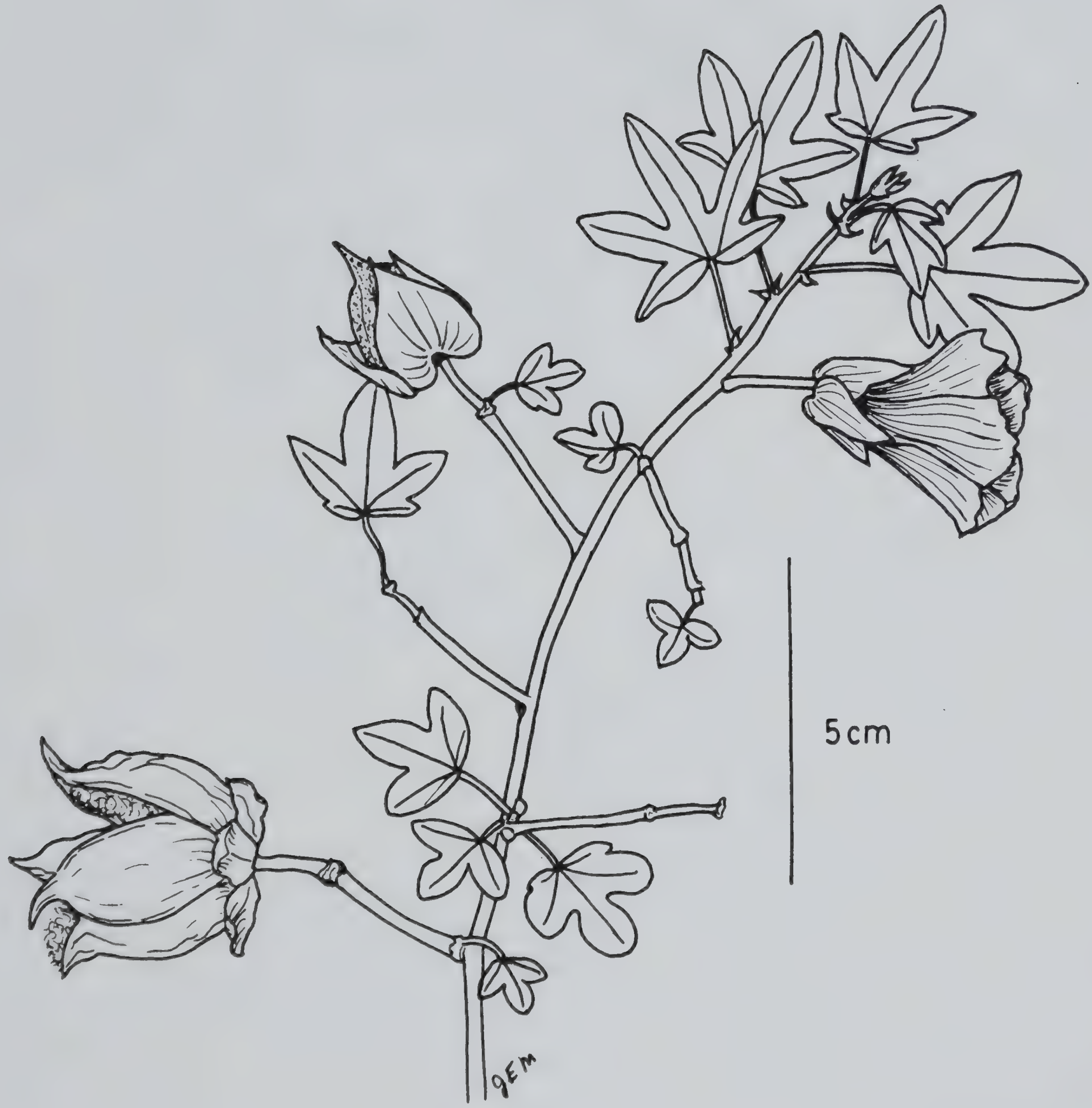
Reference : FBI. 1:328; FUGP. 1:83; FD. 76; FID. 62; FNER. 60



ALTHAEA L.

Althaea ludwigii L.

Characteristics	:	A branched, hairy, prostrate to slightly ascending herb. Leaves with long petiole, semi-orbicular, 5 to 7-lobed; each lobe 3 to 5-fid. Flowers white, 1 to 3 in each leaf axil, subtended by 7 to 9 hairy bracteoles. Fruit a schizocarp with 8 to 9 carpels. Seeds brown, hairy.
Habitat	:	Common in moist soil in late winter.
Fl. & Fr.	:	January to March.
Reference	:	FBI. 1:319; FUGP. 1:78; FID. 63



GOSSYPIUM L.

Gossypium arboreum L.

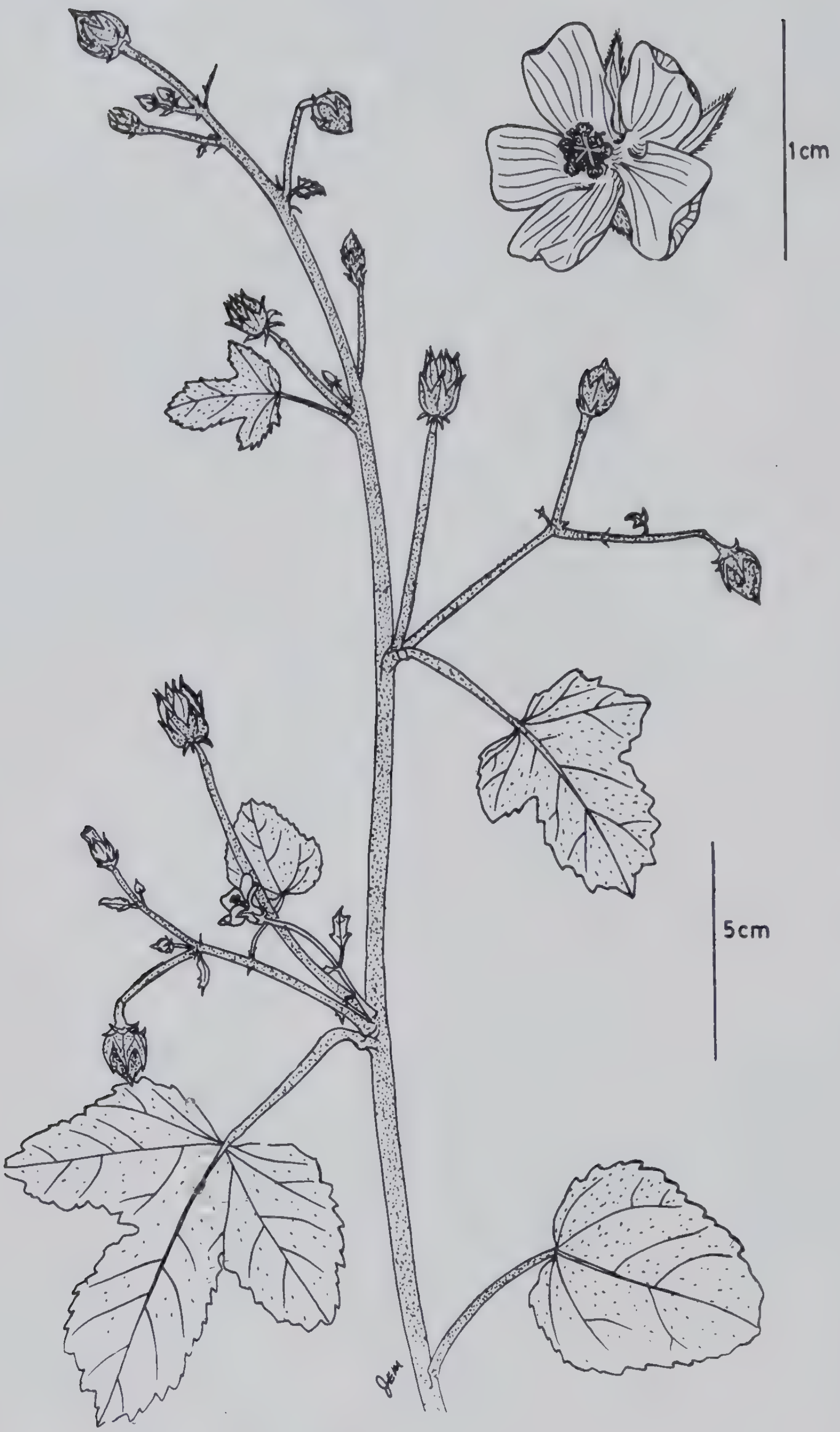
Local name : Bun

Characteristics : A small shrub; stem hairy when young. Leaves with 5 to 7 lobes; petioles hairy. Flowers reddish-purple, arranged in leaf axils; bracteoles 3, large, heart-shaped. Fruits 3-valved with fibres covering the seeds.

Habitat : Planted near Sothan Walah Temple.

Fl. & Fr. : October to November.

Reference : FBI. 1:347; FUGP. 1:95; FD. 82



HIBISCUS L.

Hibiscus amblyocarpus Hochst

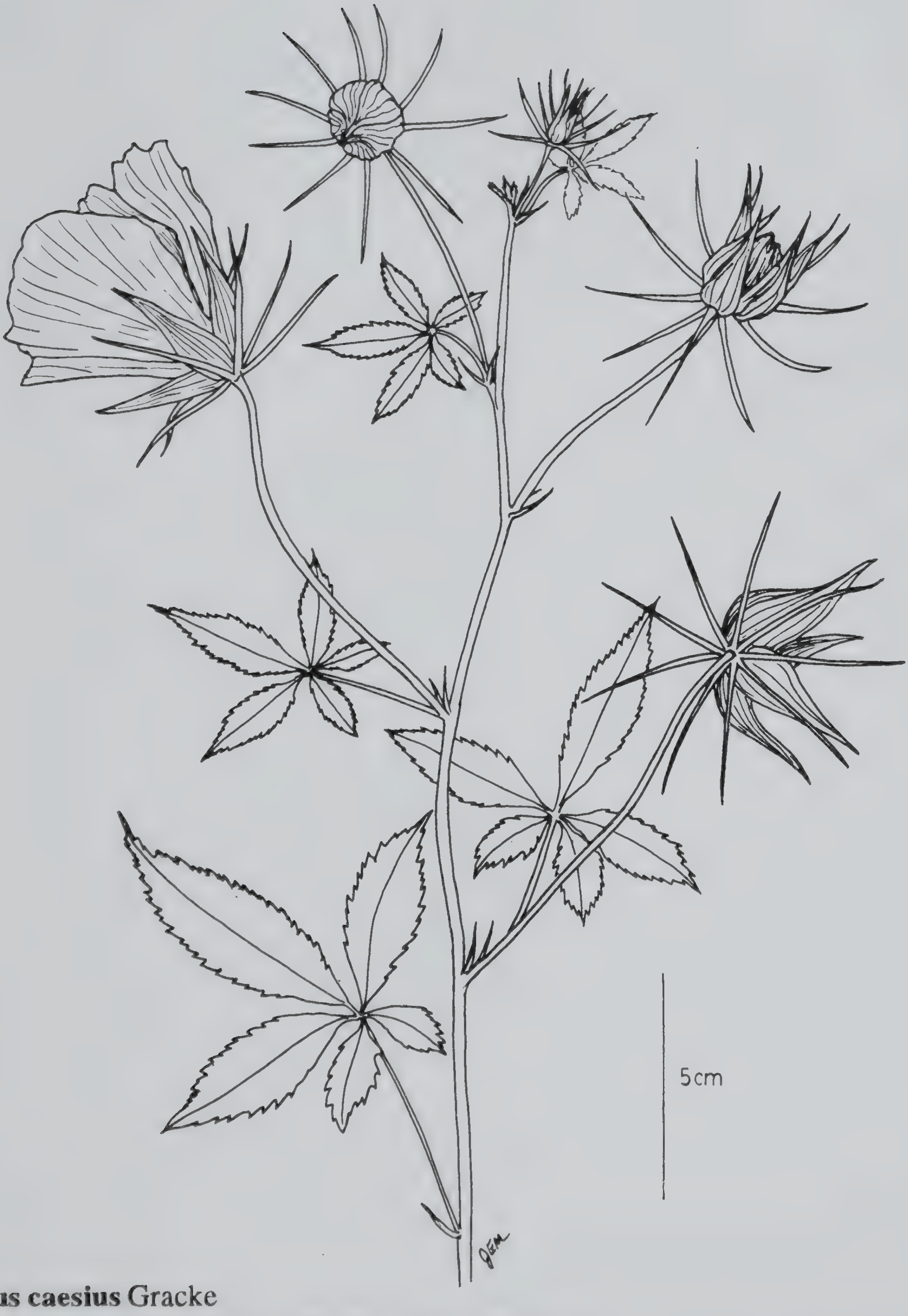
Synonyms : *H. obtusilobus* Garcke
H. punctatus Dalz.

Characteristics : An erect, undershrub with hairy to scabrous stems. Leaf shape variable, usually ovate, entire or 3-lobed, cordate at base, toothed at margin. Flowers white, solitary or in clusters; pedicels longer than petioles, jointed near the apex; bracteoles 7 or more. Fruit an egg-shaped capsule with a beaked apex.

Habitat : Frequent in wet soil usually under shrubs and small trees.

Fl.& Fr. : September to December.

Reference : FBI. 1:340; FID. 65; FI. 120:31



Hibiscus caesius Gracke

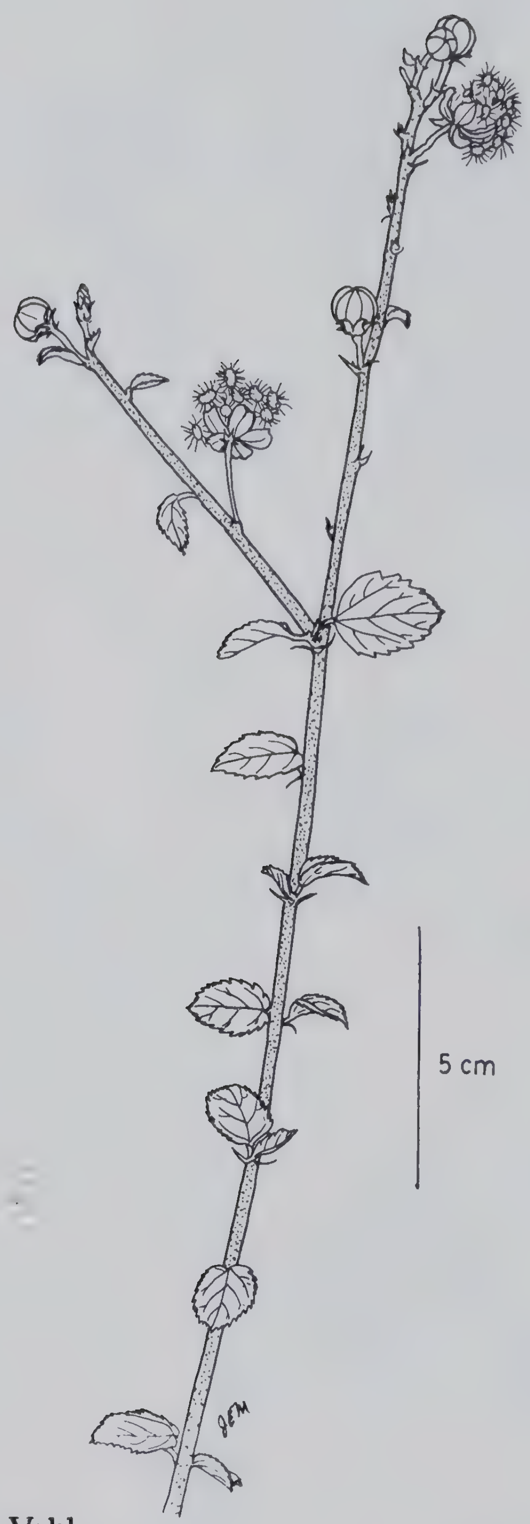
Synonym : *H. gibsoni* Stocks ex Harv. & Sond.

Characteristics : An undershrub with bristly hairs on stems. Leaves 5-lobed, toothed on margins; petioles with bristly hairs. Flowers yellow with purple centre, solitary, axillary; pedicels longer than petioles, jointed near the apex; bracteoles 10, linear, spine-like. Fruit an oval, hairy capsule.

Habitat : Found along roadside between Shantikutir and barrier; not common.

Fl. & Fr. : August to January.

Reference : FBI. 1:339; FUGP. 1:91; FGT. 1:103



Hibiscus ovalifolius (Forsk.) Vahl

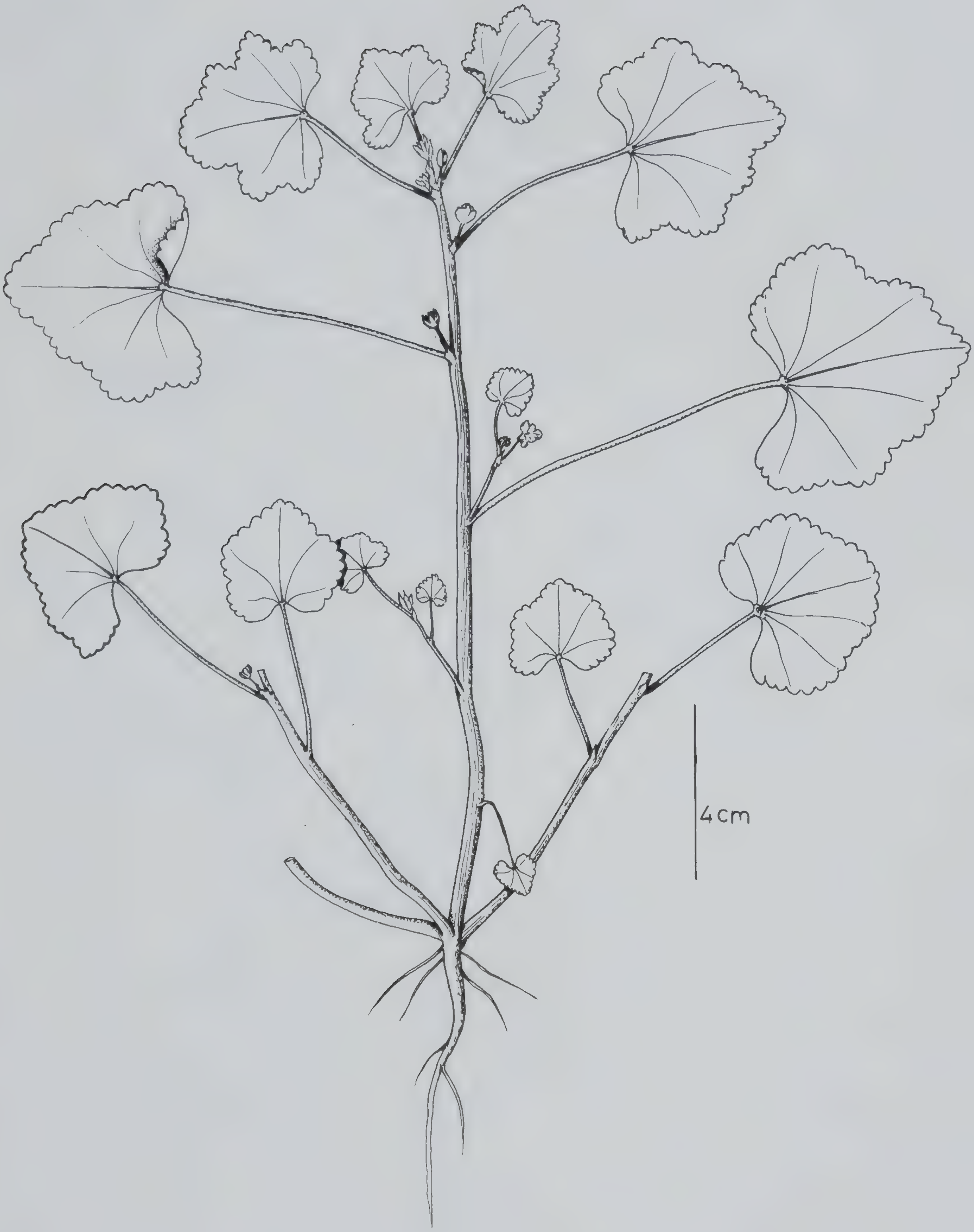
Synonym : *H. micranthus* L. f.

Characteristics : Small shrubs with small, bristly hairs on branches and leaves. Leaves ovate, sharply toothed with smallest teeth near the apex; petioles up to 1 cm long. Flowers white or pinkish, solitary, axillary; pedicels longer than petiole, jointed below the middle portion. Fruit a hairy capsule which remains on the plant after dehiscing. Seeds cottony.

Habitat : Found in association with shrubs and small trees under their shade; not common.

Fl. & Fr. : August to December.

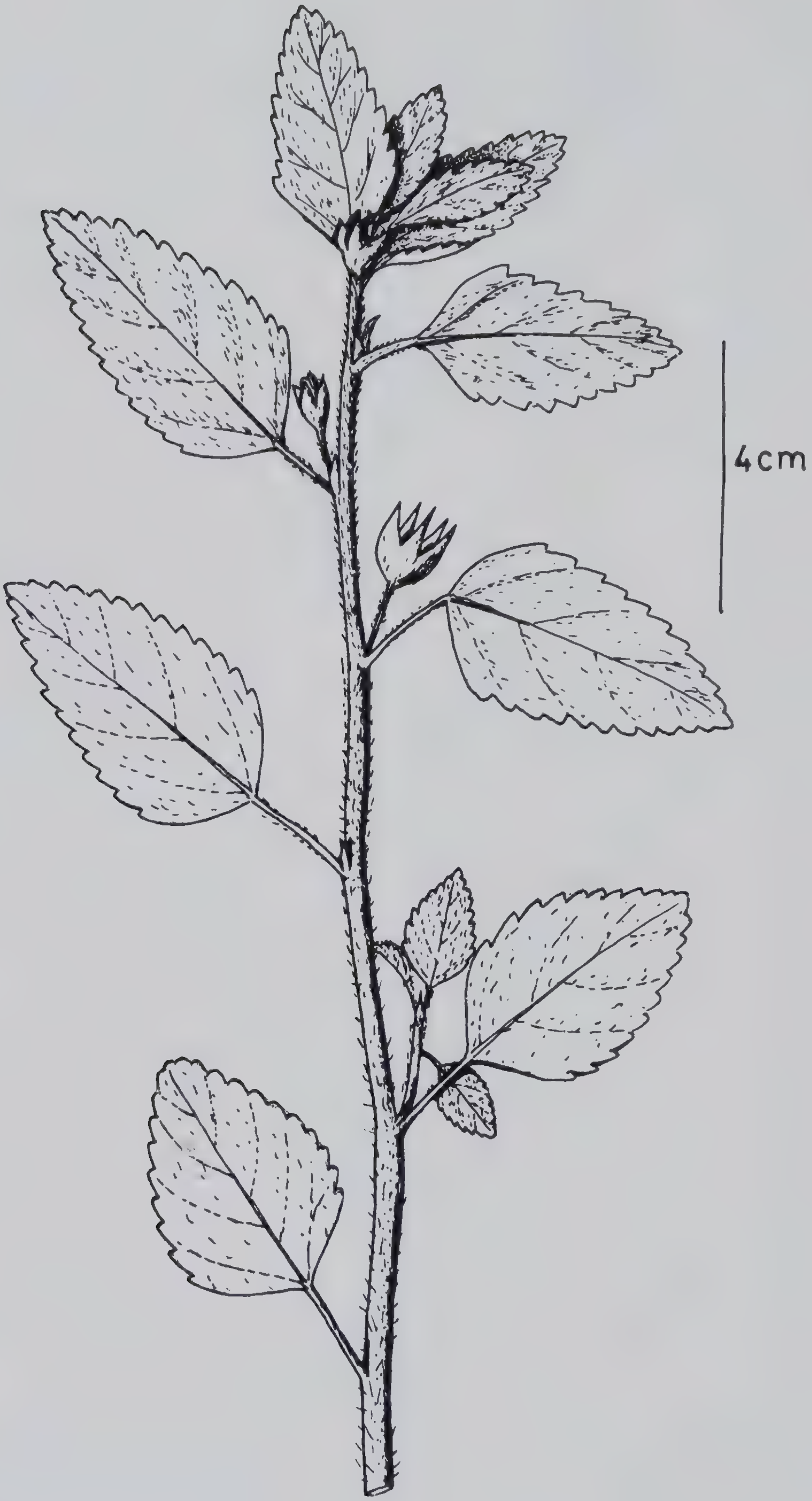
Reference : FBI. 1:335; FUGP 1:89; FD. 80; FID. 65; FNER. 61



MALVA L.

Malva parviflora L.

Characteristics	:	A prostrate or decumbent deep-rooted herb.Leaves rounded or reniform, occasionally slightly 5 to 7-lobed, toothed; petioles 5 to 10 cm long. Flowers white, in few-flowered clusters, axillary; bracteoles 3. Fruits with 10 one-seeded, glabrous carpels.
Habitat	:	Moist soil in open areas and along roadsides; not common.
Fl. & Fr.	:	January to March.
Reference	:	FBI. 1:321; FUGP. 1:79; FD. 76; FID. 67; FNER. 62



MALVASTRUM A. Gray

Malvastrum coromandelianum (L.) Garcke

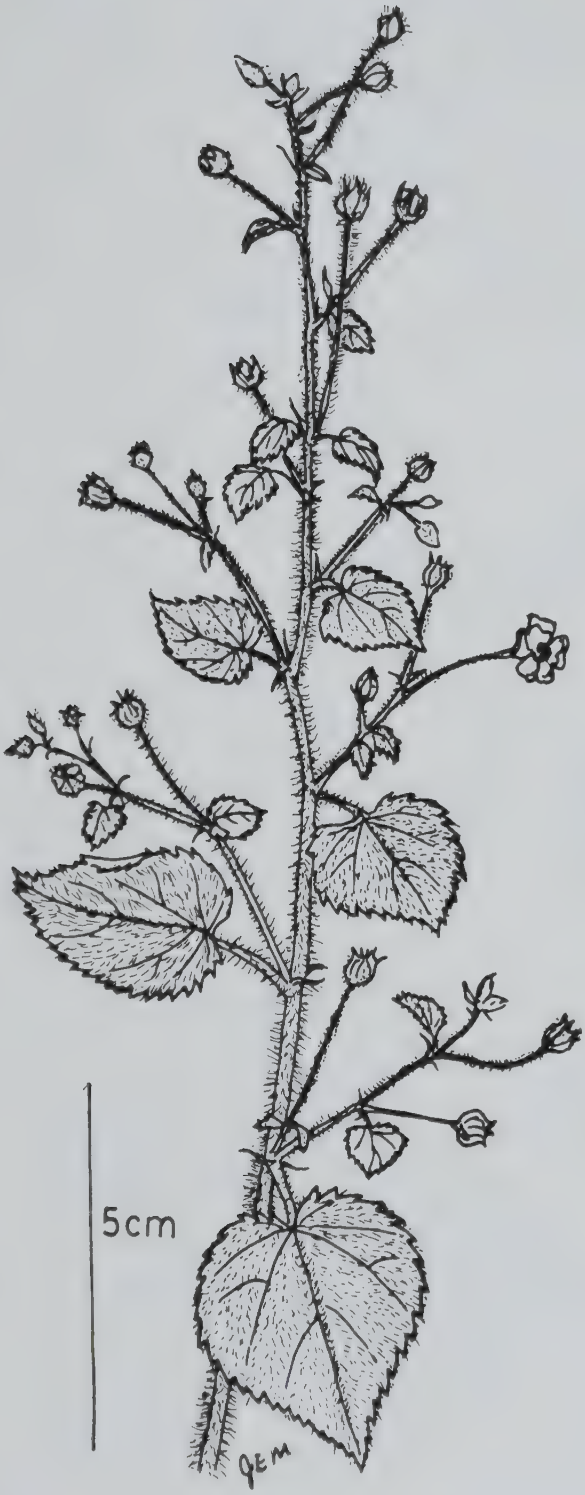
Synonym : *M. tricuspidatum* A. Gray

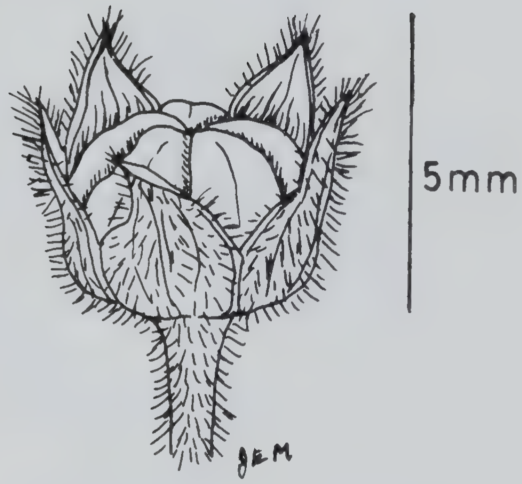
Characteristics : An erect, hairy herb. Leaves ovate or elliptic, margins toothed. Flowers yellow, on short pedicel, solitary, axillary; bracteoles 3. Fruits with 12 kidney-shaped carpels; carpels with 2 spines in the middle portion.

Habitat : Open areas along roadsides; not common.

Fl. & Fr. : August to December.

Reference : FBI. 1:321; FUGP. 1:79; FD. 77; FID. 67; FNER. 62





SIDA L.

Sida cordata (Burm. f.) Borss.

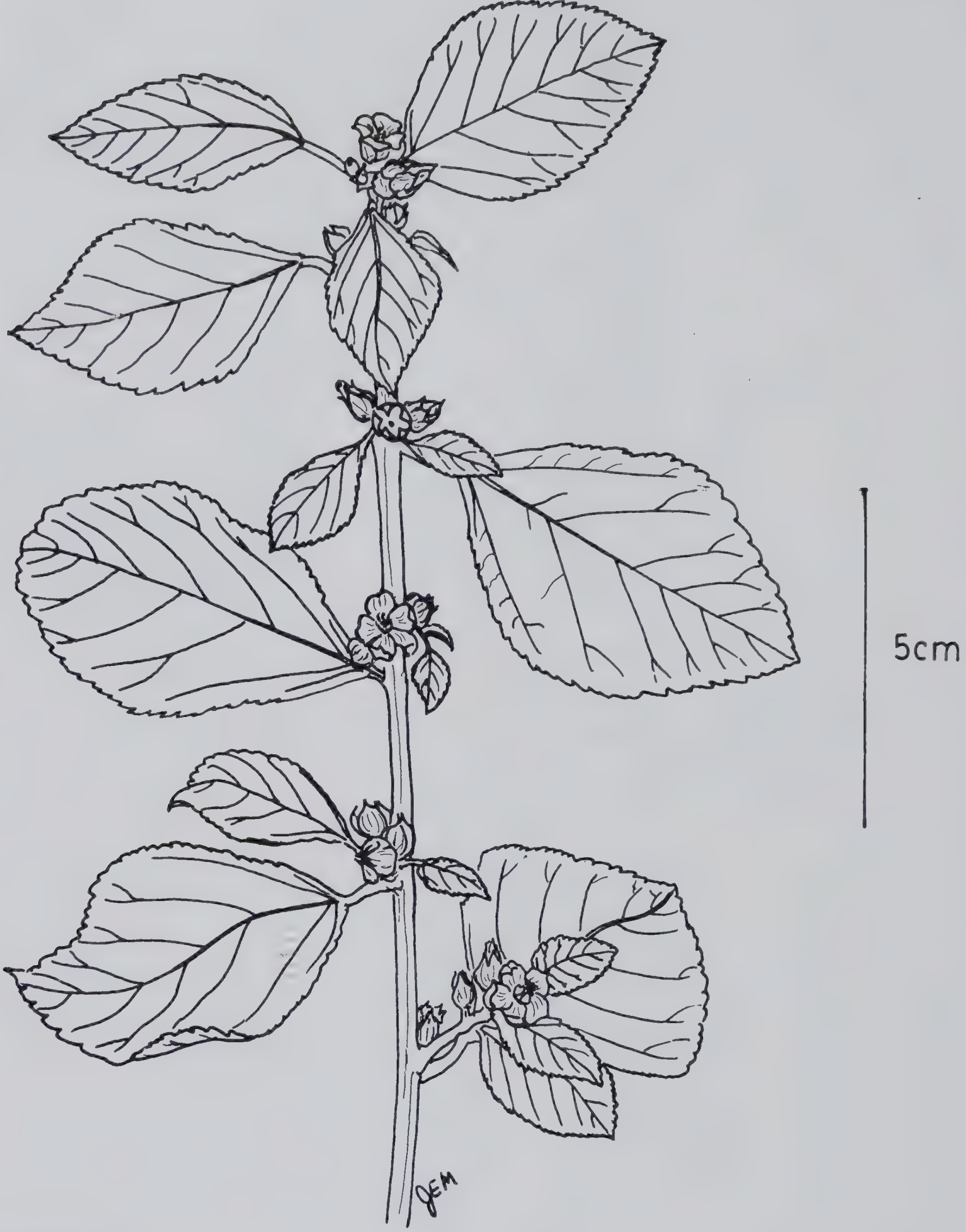
Synonym : *S. humilis* Cav.

Characteristics : A hairy or scabrous annual with prostrate or decumbent branches. Leaves broad, ovate, toothed at margin. Flowers orange; pedicels long, slender, hairy, jointed above the middle. Fruits comprised of 5 slightly hairy carpels. Seeds black.

Habitat : Occasionally found in open areas along roadsides.

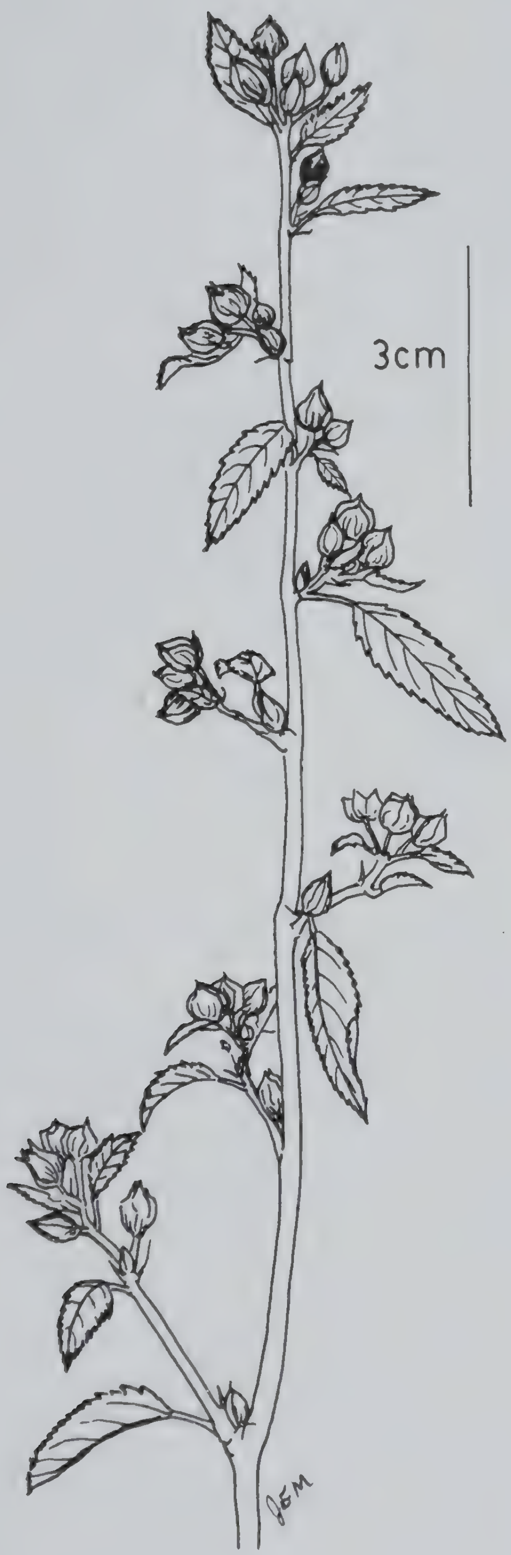
Fl. & Fr. : February to May.

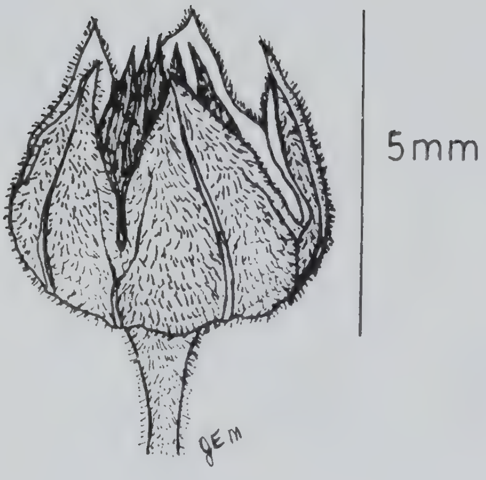
Reference : FBI. 1:322; FID. 72; FK. 1:258



Sida rhombifolia L.

Synonym	:	*S. orientalis* Cav.
Characteristics	:	An erect, woody undershrub with hairy stems. Leaves diamond-shaped (rhomboid); margins toothed; petioles up to 3 mm long. Flowers yellow, solitary, axillary or in clusters at apices of branches; pedicels longer than petioles, jointed near the middle. Fruits comprised of 8 to 12 hairy carpels; carpels with 2 awns.
Habitat	:	Associated with shrubs and small trees; not common.
Fl. & Fr.	:	August to November.
Reference	:	FBI 1:323; FUGP. 1:81; FID. 73; FNER. 65





Sida spinosa L.

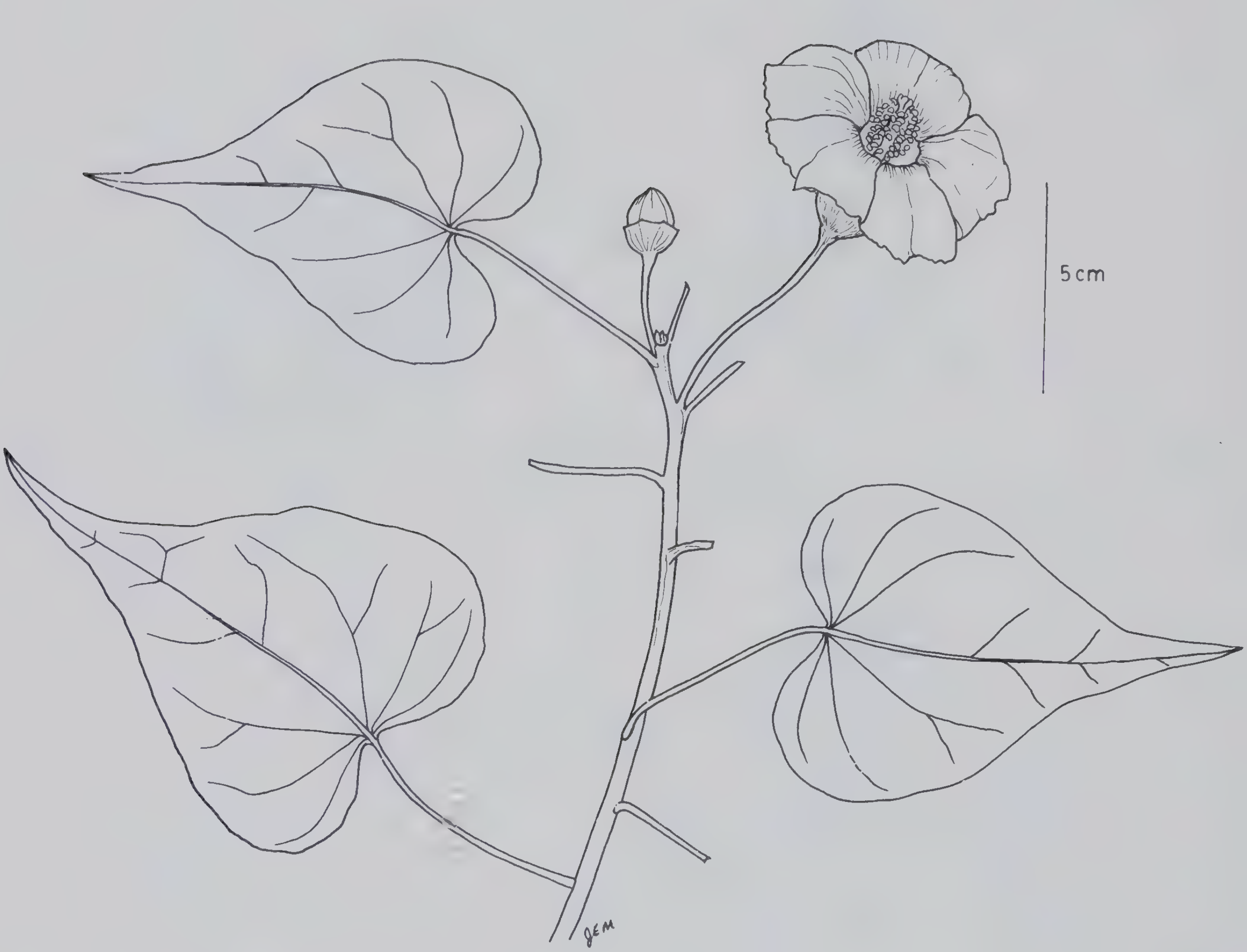
Synonym : *S. alba* L.

Characteristics : A small, branching, woody undershrub, hairy throughout. Recurved spines present on stem below the petiole. Leaves ovate, rounded at apex, toothed at margin. Flowers yellow, in fascicles or occasionally solitary, axillary; pedicels jointed above the middle portion just below the calyx. Fruits comprised of 5 carpels. Seeds smooth, dark brown.

Habitat : Dry, sandy soil in open areas; not common.

Fl. & Fr. : September to November.

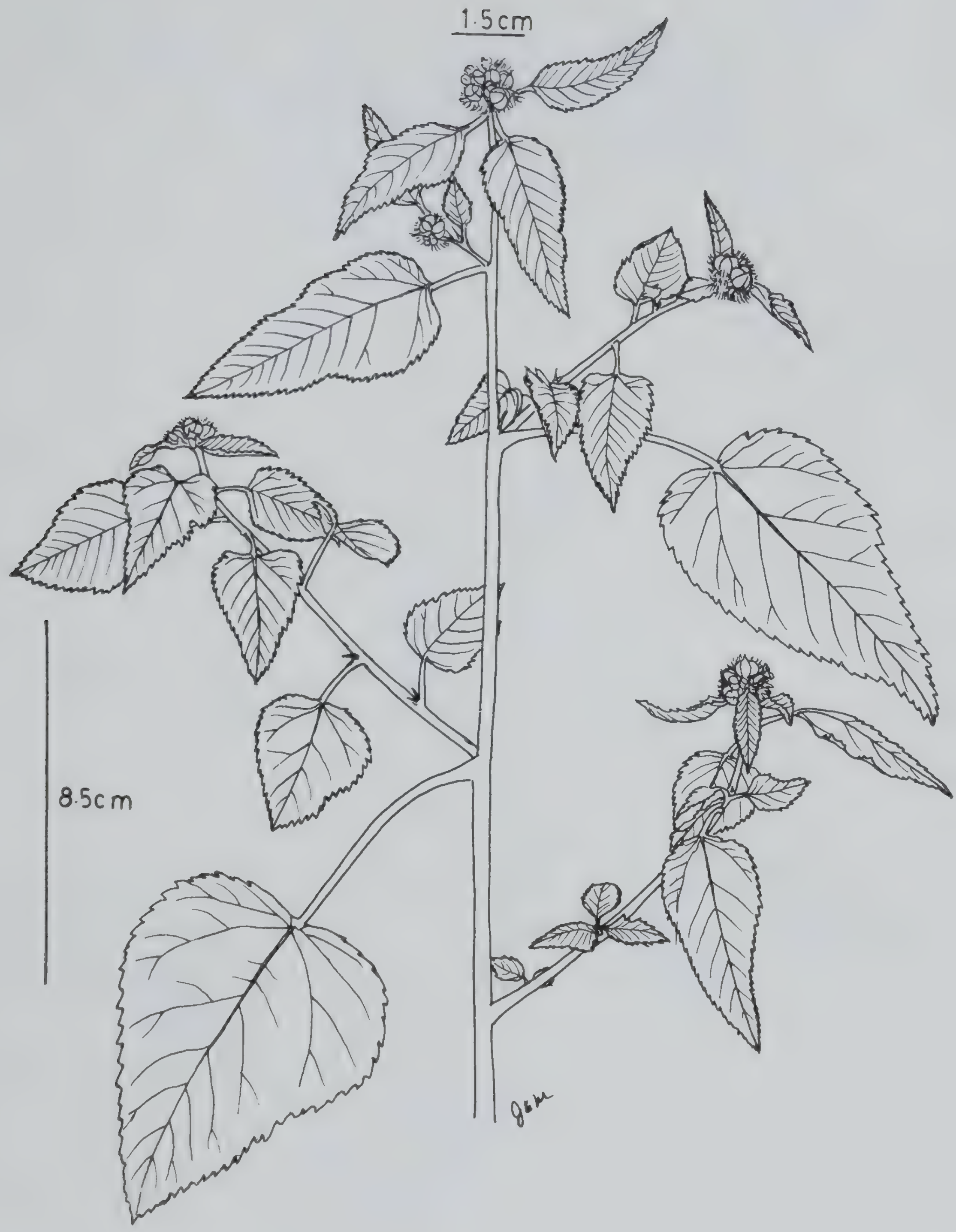
Reference : FBI. 1:323; FUGP. 1:80; FD. 74; FID. 71



THESPESIA Soland. ex Corr.

Thespesia populnea (L.) Soland. ex Corr.

Local name	:	Parus pipal
Characteristics	:	A small tree with brownish branches. Leaves broadly ovate, cordate at base, narrowed to the tip at apex; petioles very long. Flowers yellow (gradually changing to maroon by evening); bracteoles oval-shaped; calyx cup minutely 5-lobed. Fruits globose, with yellow juice.
Habitat	:	A planted tree (only one tree was found in the park, near Keoladeo Temple).
Reference	:	FBI. 1:345; FD. 82; FK. 1:261



12. STERCULIACEAE

MELOCHIA L.

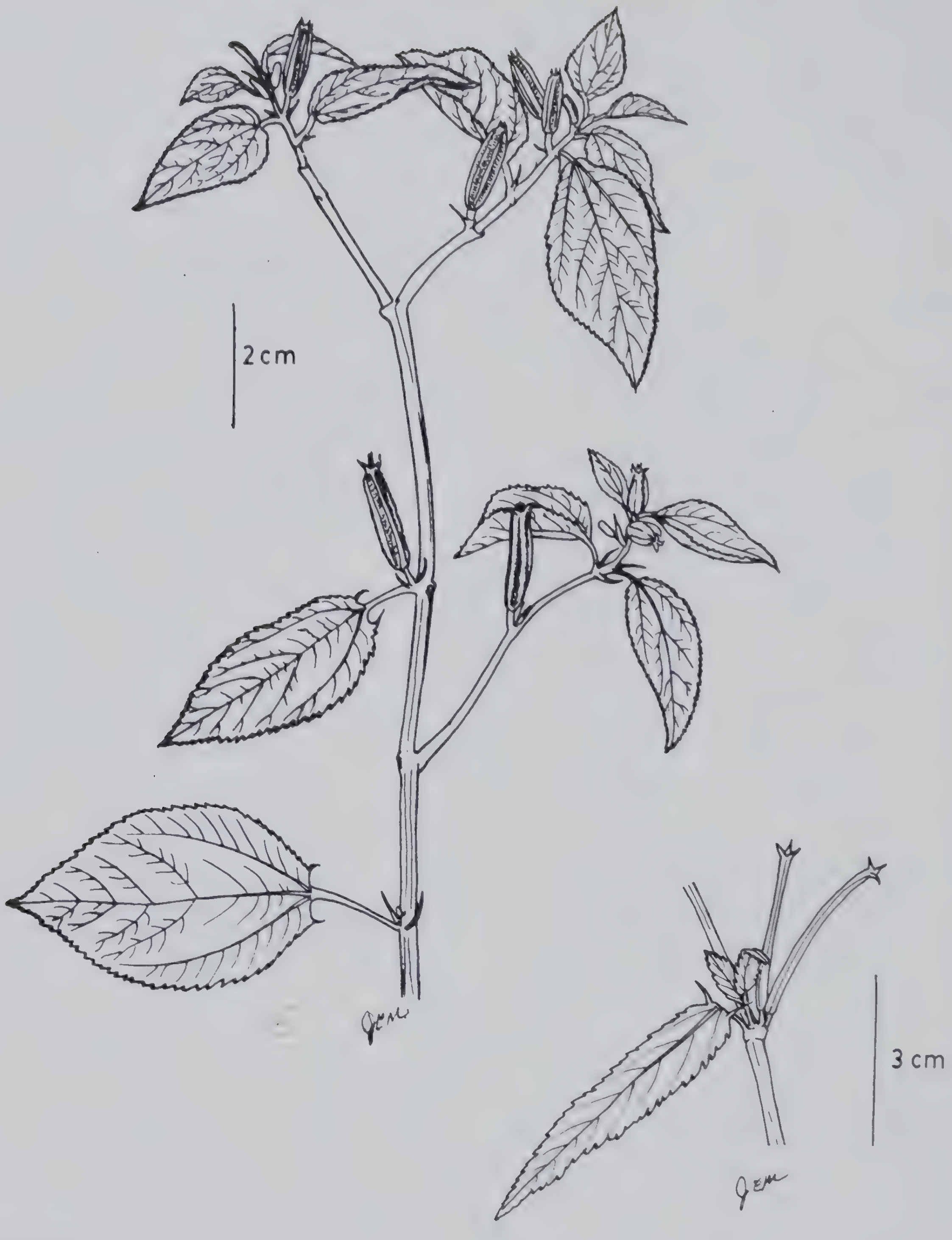
Melochia corchorifolia L.

Characteristics : An erect, branching annual herb or under shrub. Leaf shape variable, usually ovate-lanceolate, cordate or rounded at base, pointed at apex, toothed at margin. Flowers pinkish or white, in axillary or terminal clusters. Fruits globose capsules with trigonous seeds.

Habitat : Common in water logged area and wet soil along roadside after rainy season.

Fl. & Fr. : September to November.

Reference : FBI. 1:374; FUGP. 1:107; FD. 86; FNER. 68



13. TILIACEAE

CORCHORUS L.

Corchorus aestuans L.

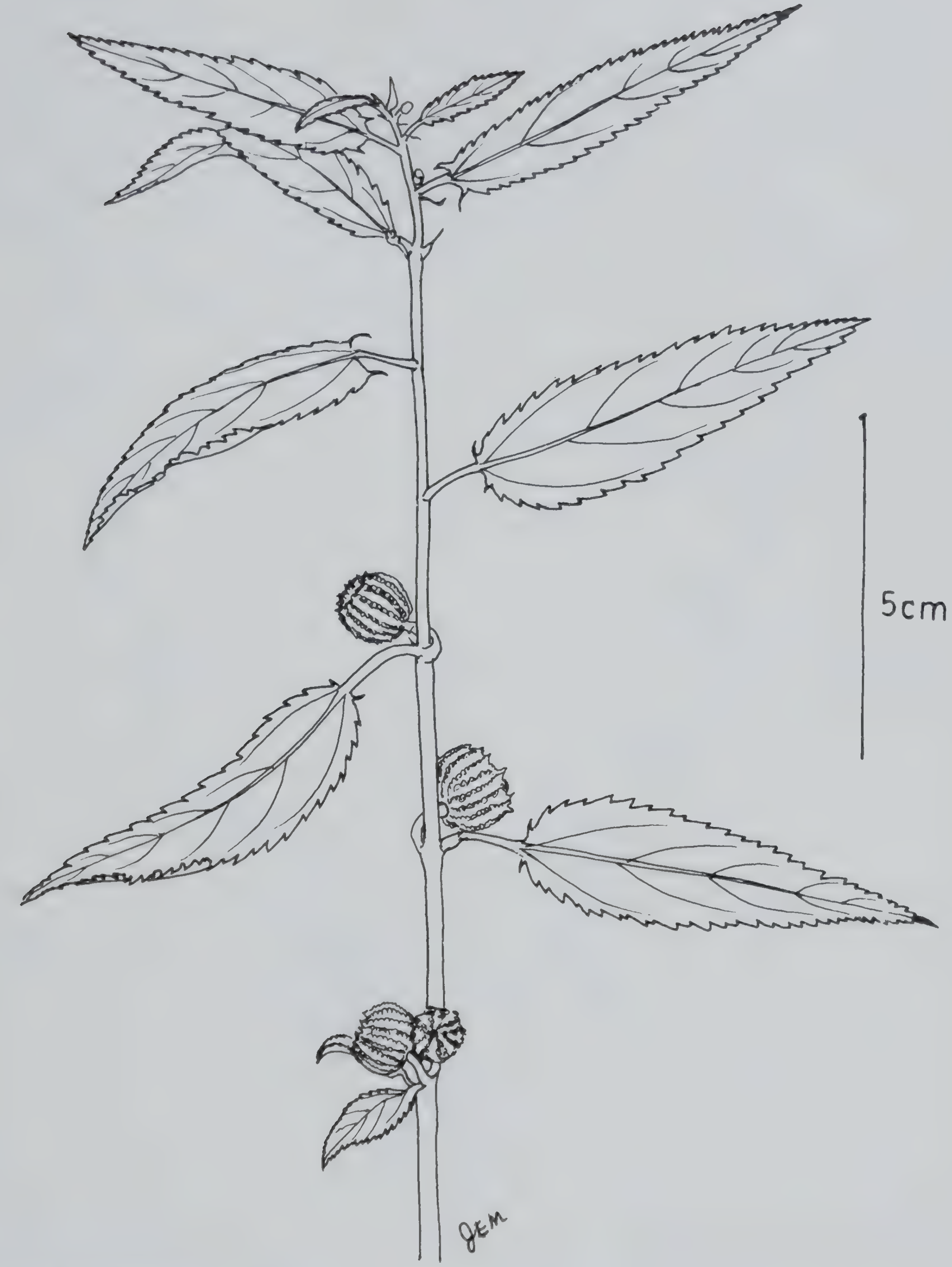
Synonym : *C. acutangularis* Lamk.

Characteristics : An erect, branching herb. Leaves usually rounded or ovate, base with a pair of filiform appendages, pointed at tip, toothed at margin. Flowers yellow, 1 to 3 on an axillary common peduncle. Fruit a cylindrical capsule, 6-angled, 3-winged and with 3 bifid beaks.

Habitat : Common in moist soil near the dykes after rainy season.

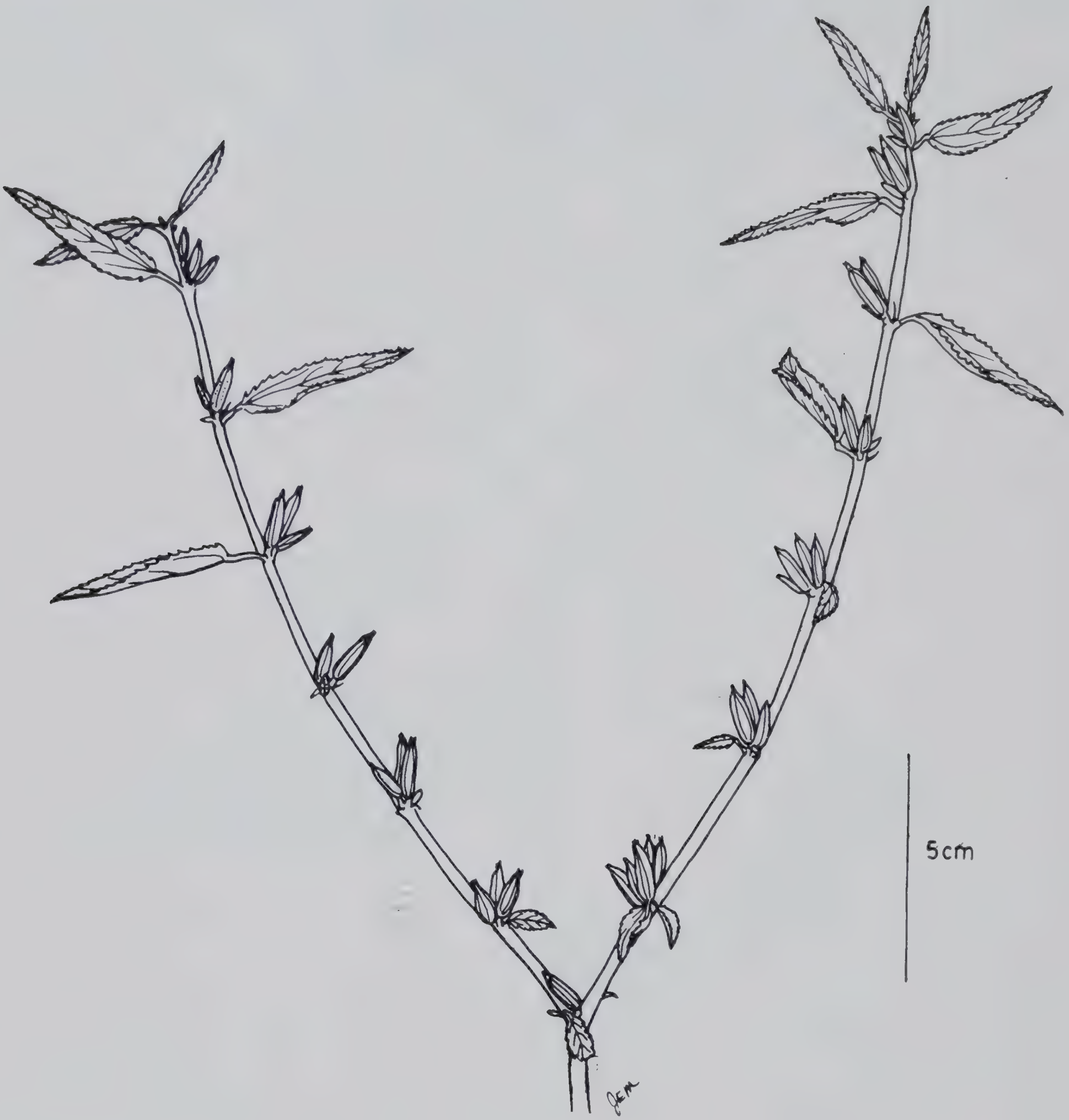
Fl. & Fr. : August to November.

Reference : FBI. 1:398; FUGP. 1:121; FD. 89; FID. 77; FNER. 70



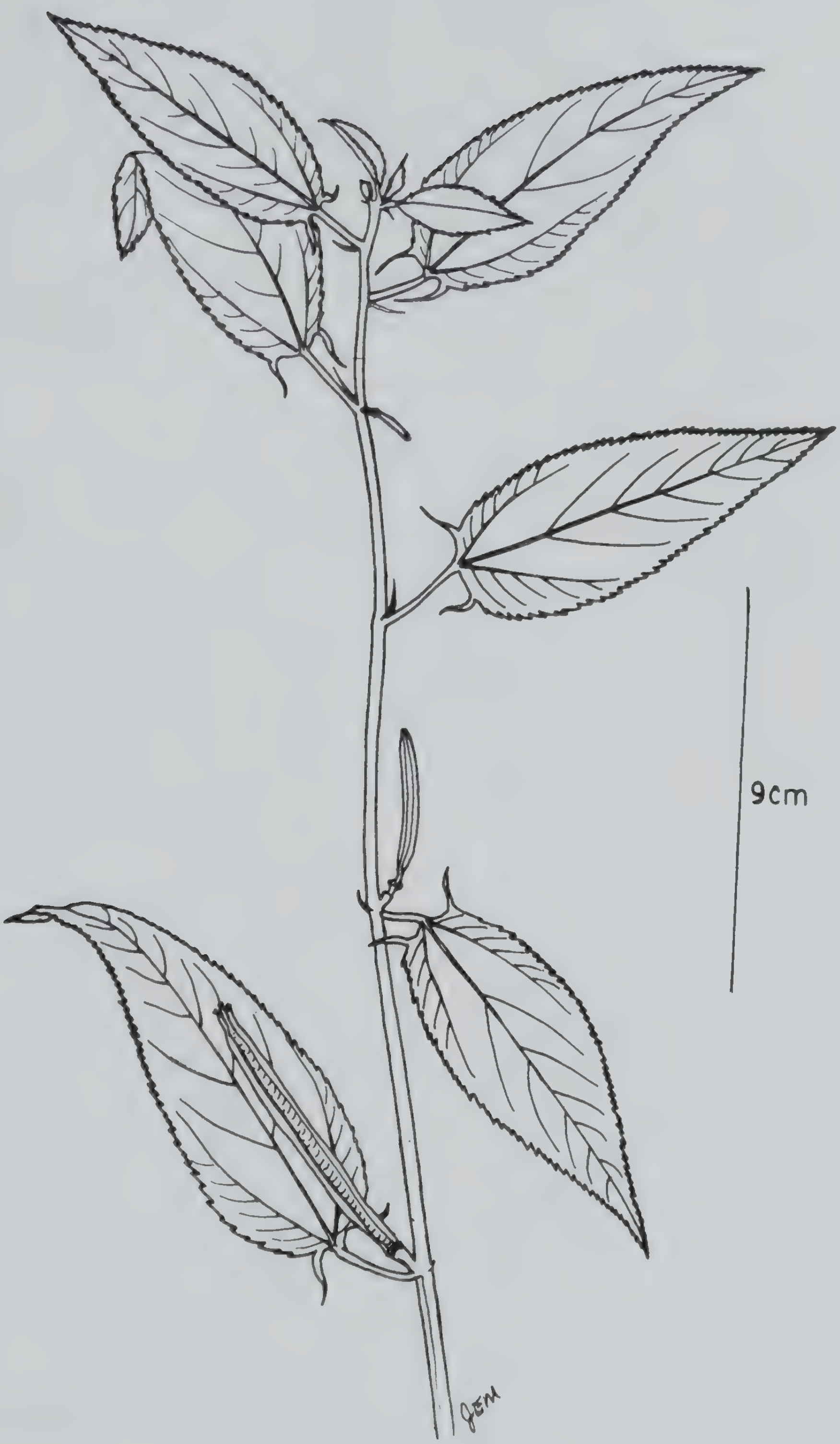
Corchorus capsularis L.

Characteristics	:	An erect, branched, glabrous, annual herb. Leaves ovate-lanceolate, witn a pair of filiform appendages at the base, toothed at margin. Flowers yellow, subsessile, 1 to 3 on an axillary common peduncle. Fruit a subglobose capsule with warty surface.
Habitat	:	Common in moist soil on the edges of aquatic area and along roadside after rainy season.
Fl. & Fr	:	August to November.
Reference	:	FBI. 1:397; FUGP. 1:119; FD. 89



Corchorus fascicularis Lamk.

Characteristics	:	A procumbent or slightly ascending, branched, annual herb. Leaves elliptic or oblong, slightly cuneate at base, filiform appendages absent at the base, toothed at margin. Flowers yellow, 2 to 5 on an axillary common peduncle. Fruit a cylindrical, 3-valved capsule.
Habitat	:	Found along the banks of Ghana canal; not common.
Fl. & Fr.	:	September to December.
Reference	:	FBI. 1:398; FUGP. 1:121; FID. 79; FNER. 71



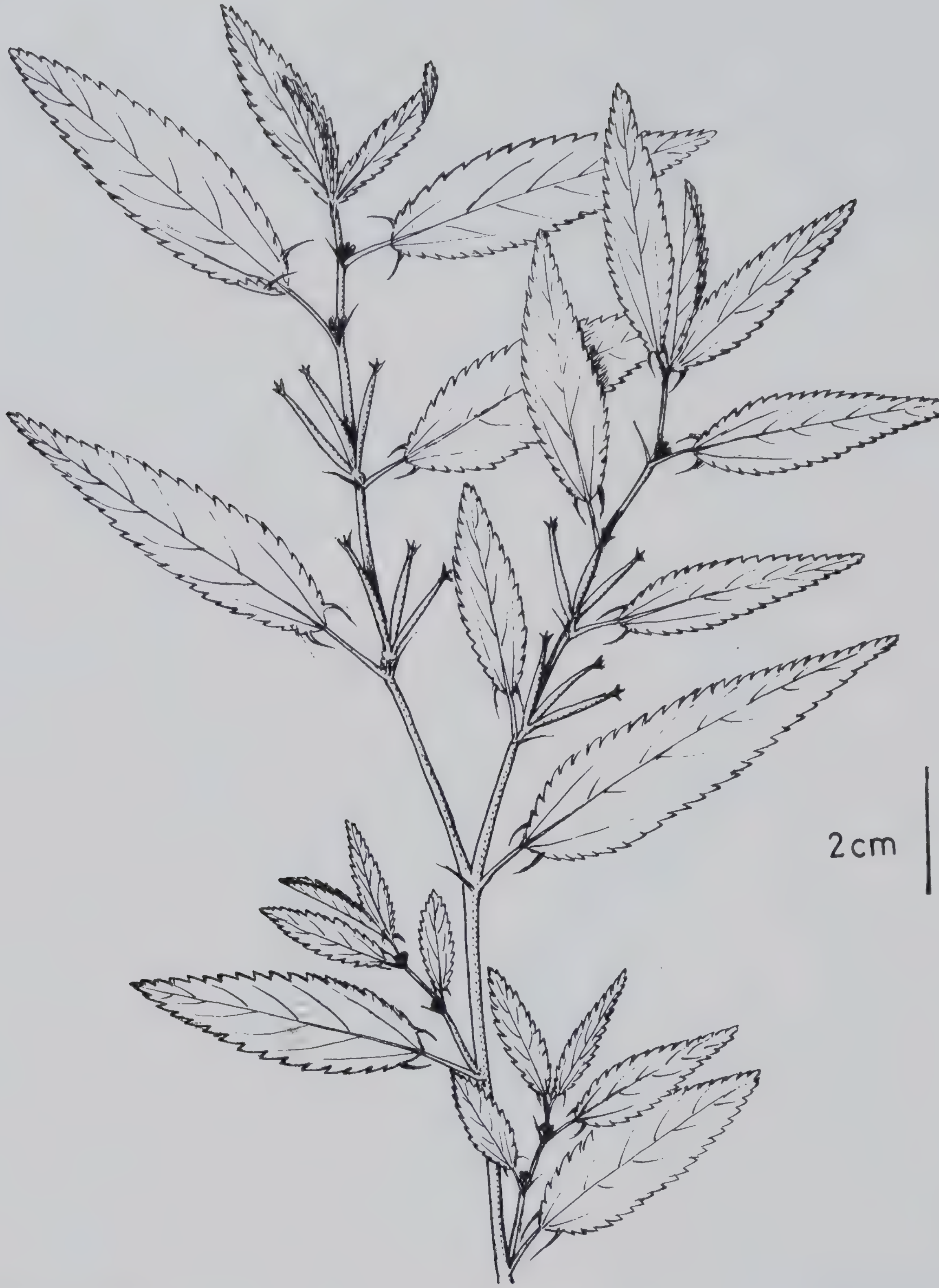
Corchorus olitorius L.

Characteristics : An erect, branched annual herb. Leaves ovate-oblong to lanceolate, rounded or subcordate at base, acute to acuminate at apex, with a pair of slender appendages at the base, toothed at margin. Flowers yellow, 2 to 3 on an axillary common peduncle. Fruit a cylindrical capsule with 10 ribs and 5 valves, beaks not spreading.

Habitat : Common in open, moist areas throughout the uplands, roadsides and along the dykes after rainy season.

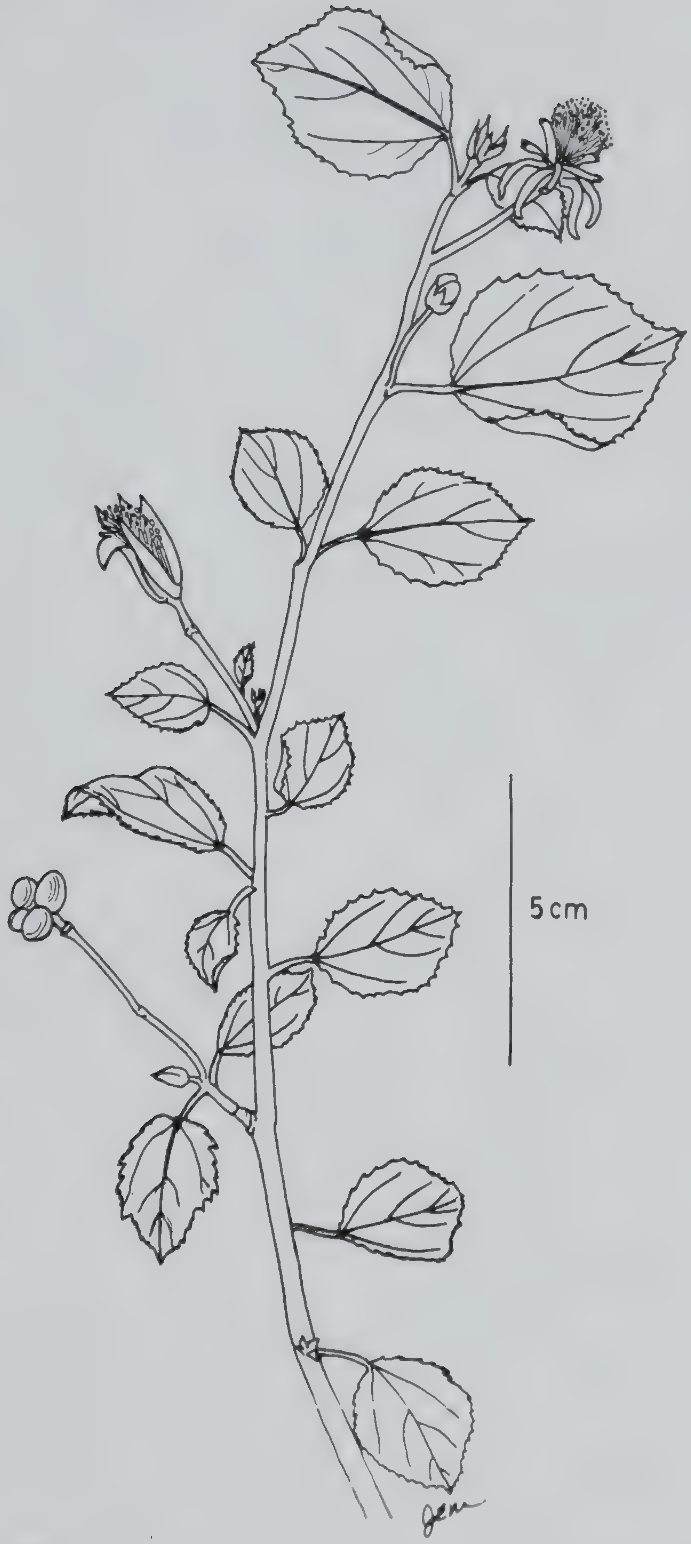
Fl. & Fr. : August to December.

Reference : FBI. 1:397; FUGP. 1:120; FD. 88; FID. 79; FNER. 71



Corchorus tridens L.

Characteristics	:	An erect annual herb, branching from the base. Stem glabrous, circular or angled. Leaves lanceolate or linear-oblong, with 2 filiform appendages at the base, toothed at margin. Flowers yellow, 1 to 4 in a leaf opposed cyme. Fruit a slightly curved, glabrous capsule terminating into 3 spreading beaks.
Habitat	:	Frequently seen in wet area after rainy season.
Fl. & Fr.	:	August to November.
Reference	:	FBI. 1:398; FUGP. 1:121; FD. 89; FID. 80; FNER. 72



GREWIA L.

Grewia tenax (Forsk.) Fiori

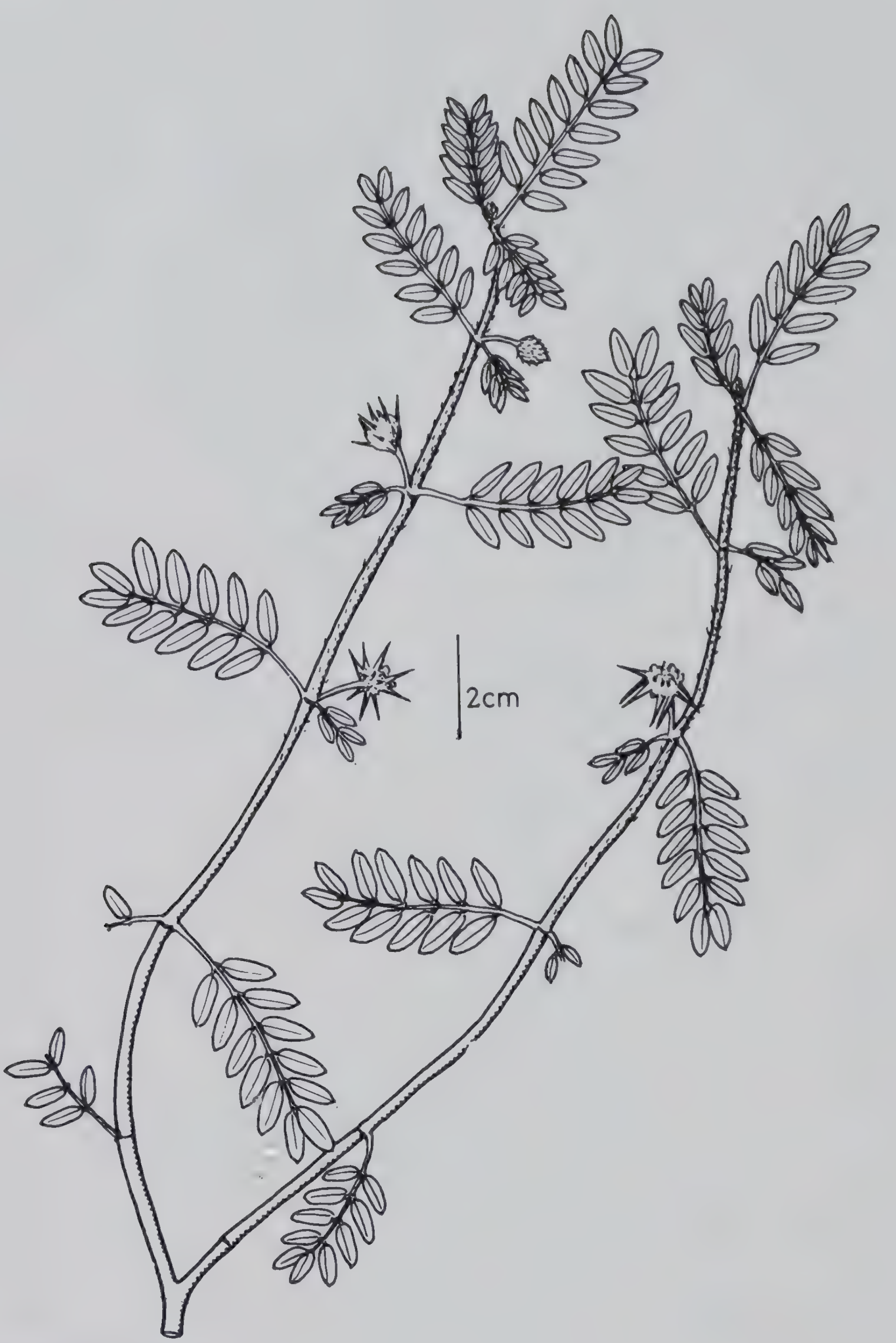
Synonym : *G. populifolia* Vahl

Characteristics : A many branched shrub with whitish-grey branches. Leaves rounded or irregular in shape, toothed at margin. Flowers white, 2 to 3 on an axillary common peduncle. Fruit a 2 to 4-lobed drupe, orange-yellow when ripe.

Habitat : Can be seen along roadside between Keoladeo Temple and Chitalvan; rare.

Fl. & Fr. : July to November.

Reference : FBI. 1:385; FUGP. 1:111; FD. 87; FID. 82; FNER. 73



14. ZYGOPHYLLACEAE

TRIBULUS L.

Tribulus terrestris L.

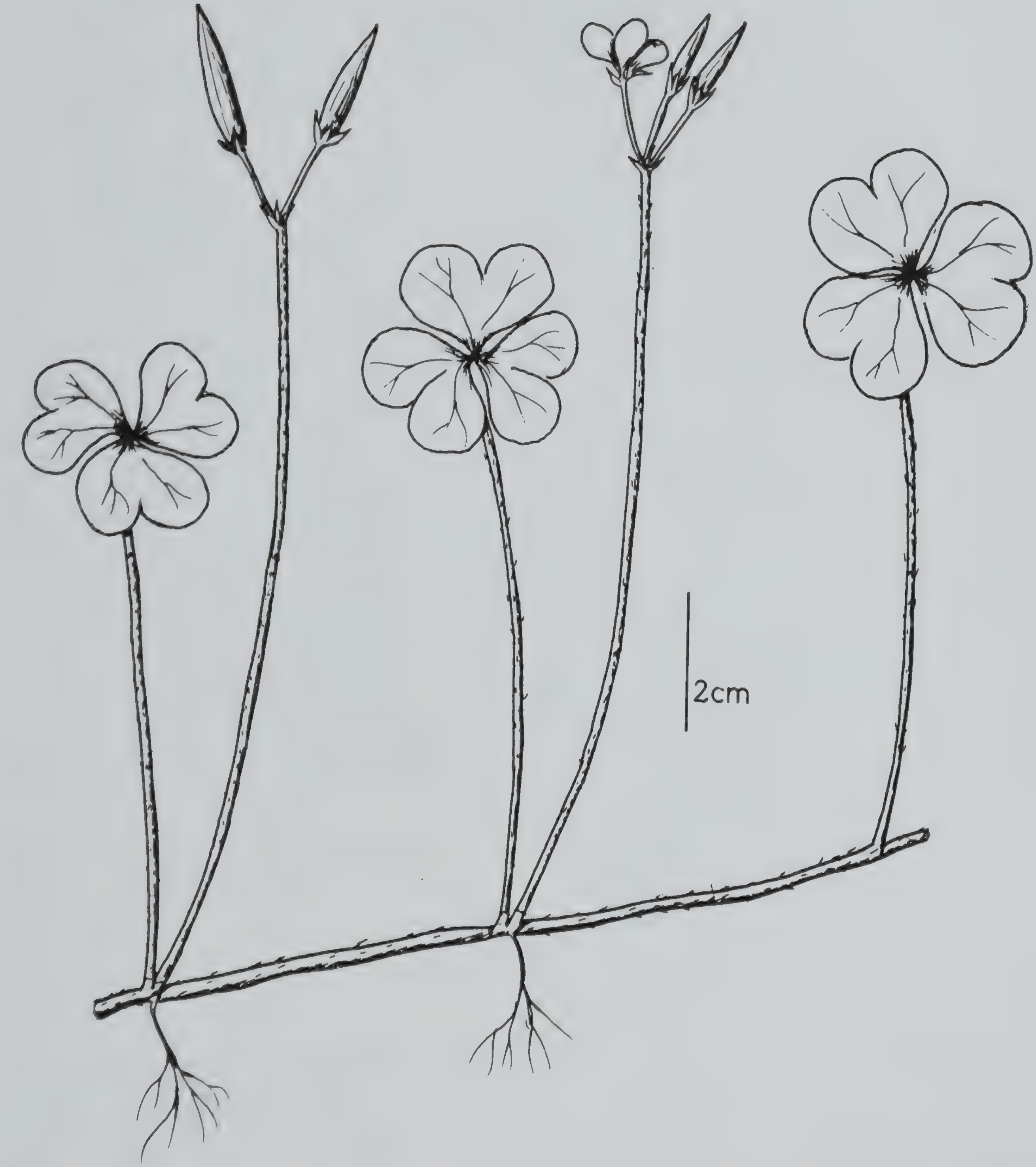
Local name : Gokhru

Characteristics : A prostrate, hairy herb. Leaves opposite, pinnately compound, unequal in size. Flowers yellow, solitary, leaf opposed. Fruit comprised of 5 carpels; each with 2 pairs of spines, 1 pair prominent, the other small.

Habitat : Along roadsides between Sapan mori and Keoladeo Temple; not common.

Fl. & Fr. : July to November.

Reference : FBI. 1:423; FUGP. 1:127; FD. 91; FID. 89; FNER. 76

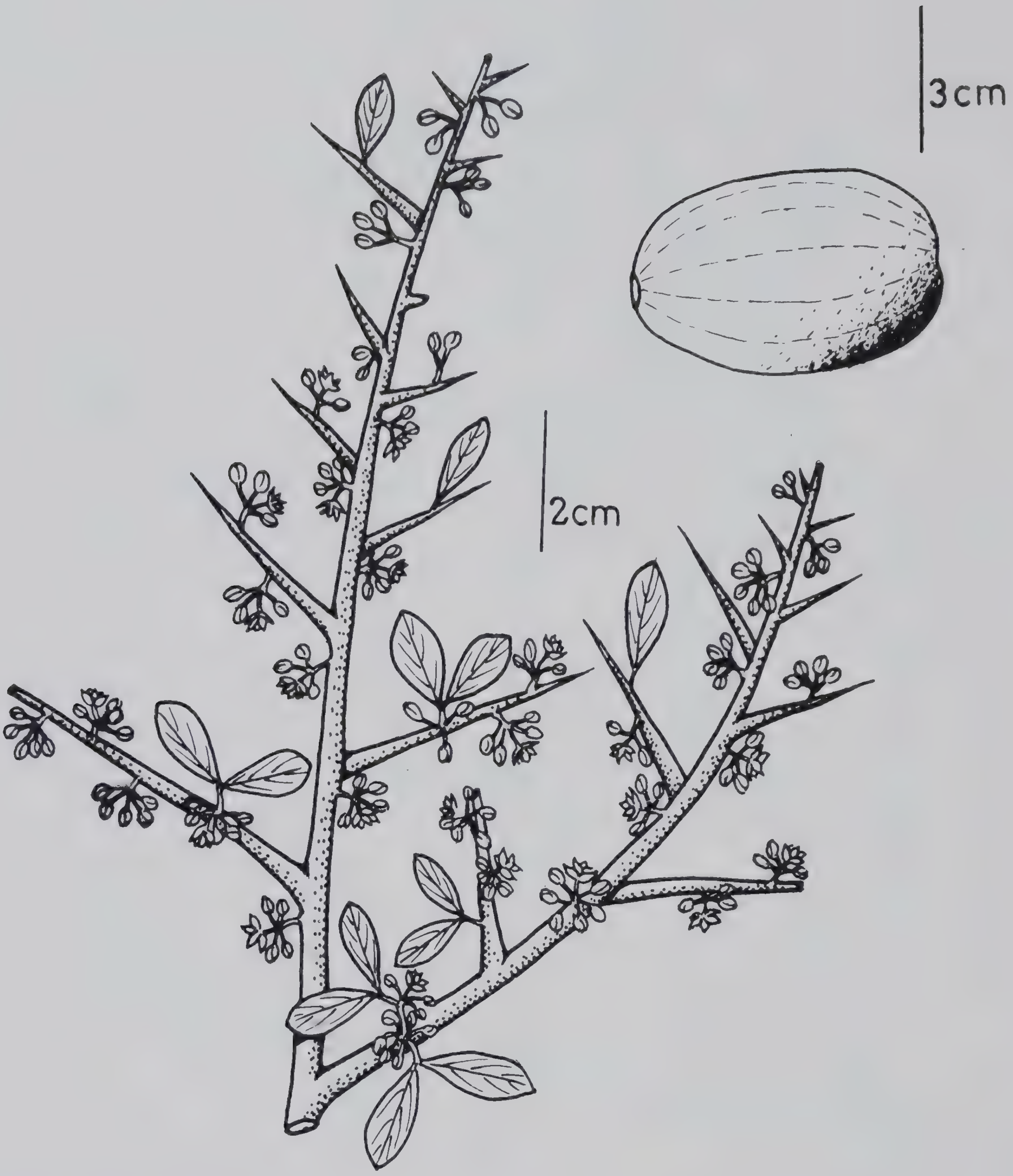


15. OXALIDACEAE

OXALIS L.

Oxalis corniculata L.

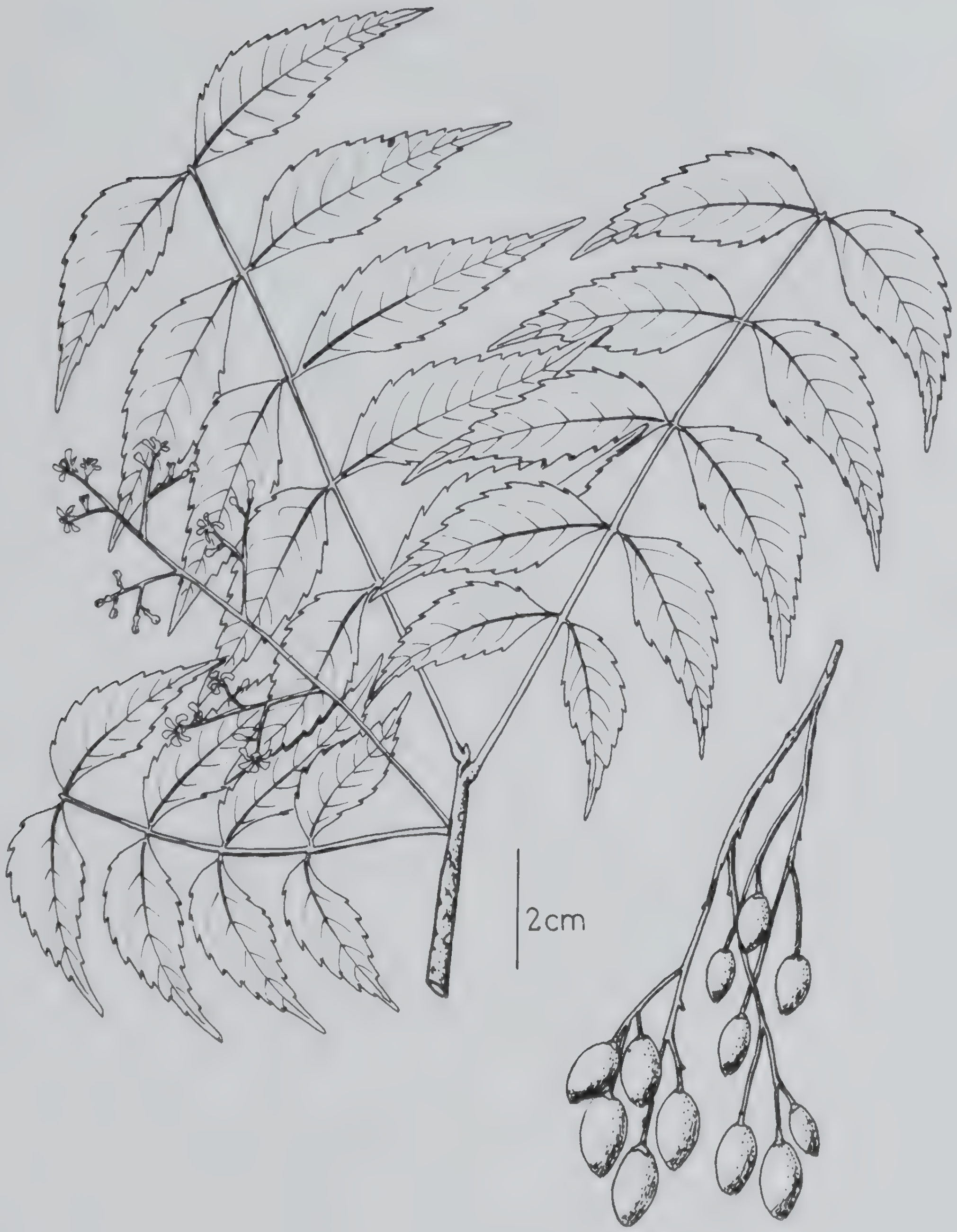
Characteristics	:	A prostrate or suberect creeping herb, rooting at nodes. Leaves 3-foliolate, long petiolate; leaflets broader than long. Flowers yellow, 2 to 8 in an umbellate cluster on a 5 to 8 cm long axillary peduncle. Fruit a long beaked capsule. Seeds numerous.
Habitat	:	Common in moist, shady areas.
Fl. & Fr.	:	February to May.
Reference	:	FBI. 1:436; FUGP. 1:130; FD. 93; FID. 92; FNER. 79



16. BALANITACEAE

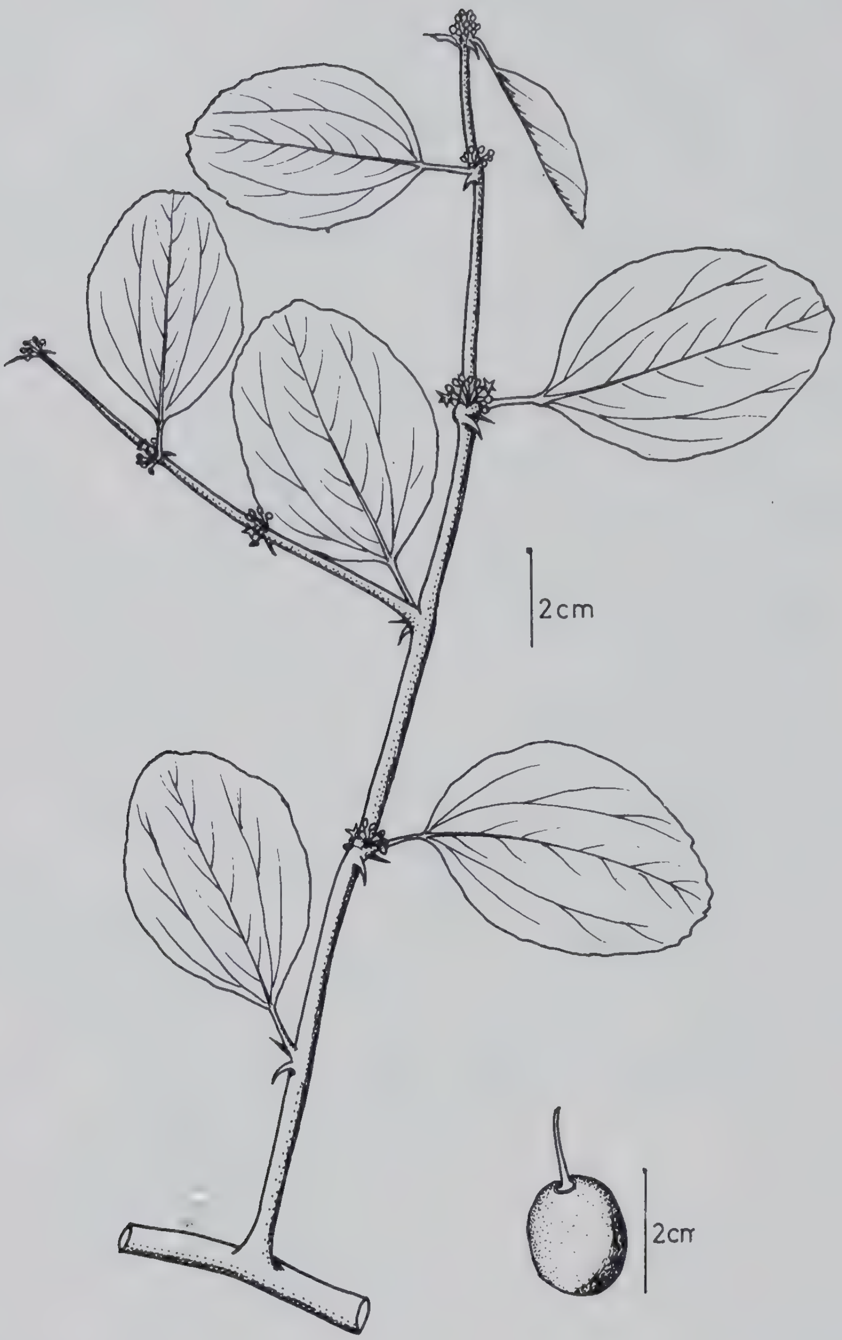
BALANITES Del.
Balanites aegyptiaca (L.) Del.

Synonym : *B. roxburghii* Planch.
Local name : Hingota
Characteristics : A small armed tree with strong, straight spines on branches. Leaves 2-foliolate. Flowers greenish-white, fragrant, arranged in axillary clusters. Fruit a woody drupe.
Habitat : Scattered throughout the uplands in sandy areas.
Fl. & Fr. : April to May.
Reference : FBI. 1:522; FUGP. 1:145; FD. 98; FID. 94; FNER. 82



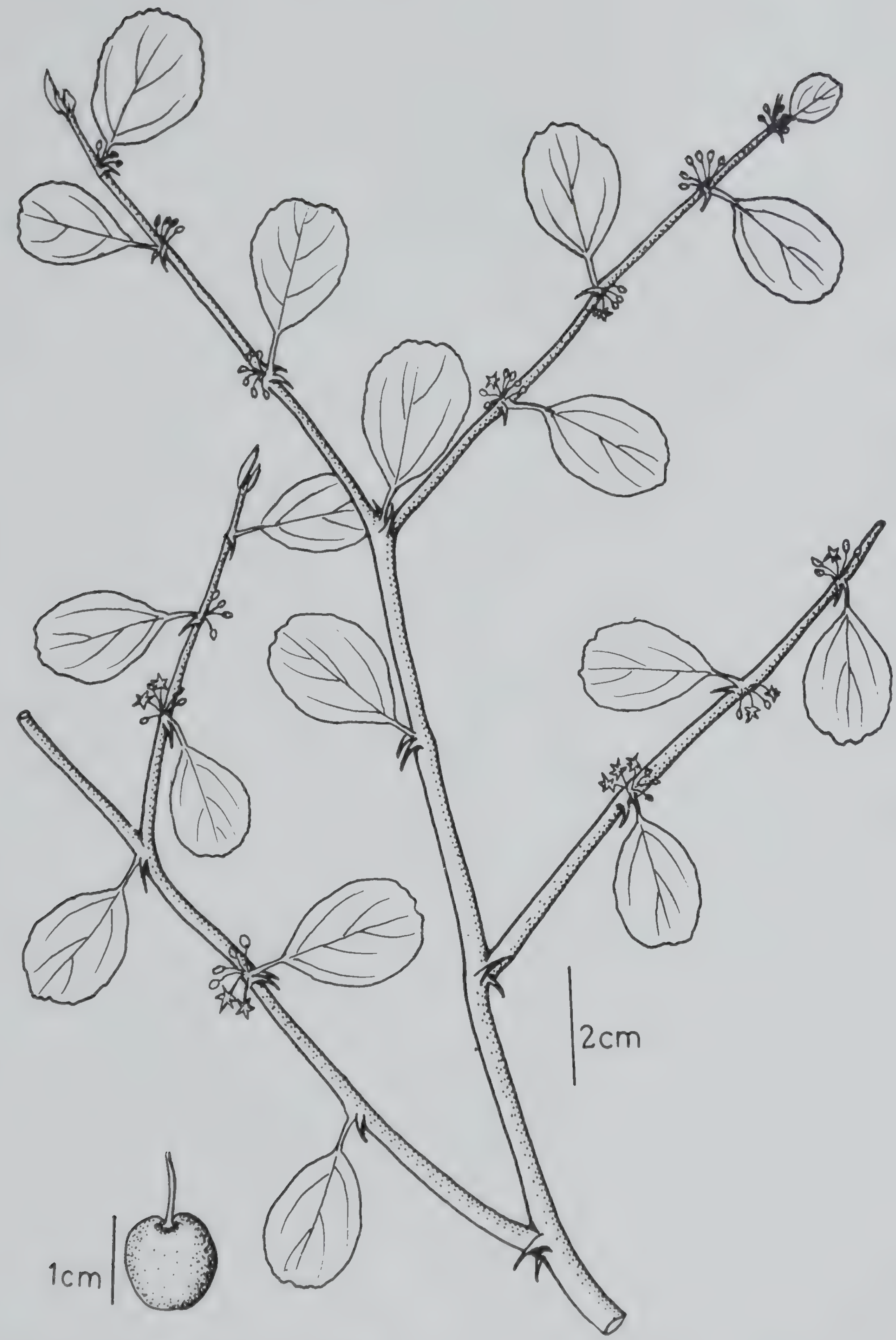
17. MELIACEAE

AZADIRACHTA A. Juss.
Azadirachta indica A. Juss.
Synonym : *Melia azadirachta* L.
Local name : Neem
Characteristics : A large tree with leaves crowded near the end of branches. Leaves pinnately compound, with 9 to 13 leaflets; leaflets asymmetrical at base, toothed at margin. Flowers white, fragrant, arranged in branched panicles. Fruit an ovoid-oblong drupe with one seed, sweet and yellow when ripe.
Habitat : Planted along roadsides.
Fl. & Fr. : March to May.
References : FBI. 1:544; FUGP. 1:150; FD. 99; FID. 96; FNER. 85



18. RHAMNACEAE

ZIZIPHUS Mill.
Ziziphus mauritiana Lamk.
Synonym : *Z. jujuba* (L.) Gaertn. non Mill.
Local name : Ber
Characteristics : A small, much-branched, evergreen tree or large shrub. Leaves usually rounded or elliptic, glabrous above, matted with small woolly hairs beneath, minutely toothed at margin. Prickles in pairs; one straight and the other recurved. Flowers greenish-yellow, in axillary clusters. Fruits globose, one seeded, pulpy, orange to red when ripe.
Habitat : Common along roadside and in loose soil throughout the uplands.
Fl. & Fr. : September to February.
Reference : FBI. 1:632; FUGP. 1:163; FD. 99; FID. 99. FNER. 91



Ziziphus nummularia (Burm. f.) Wt. & Arn.

Synonym : *Z. rotundifolia* Lamk.

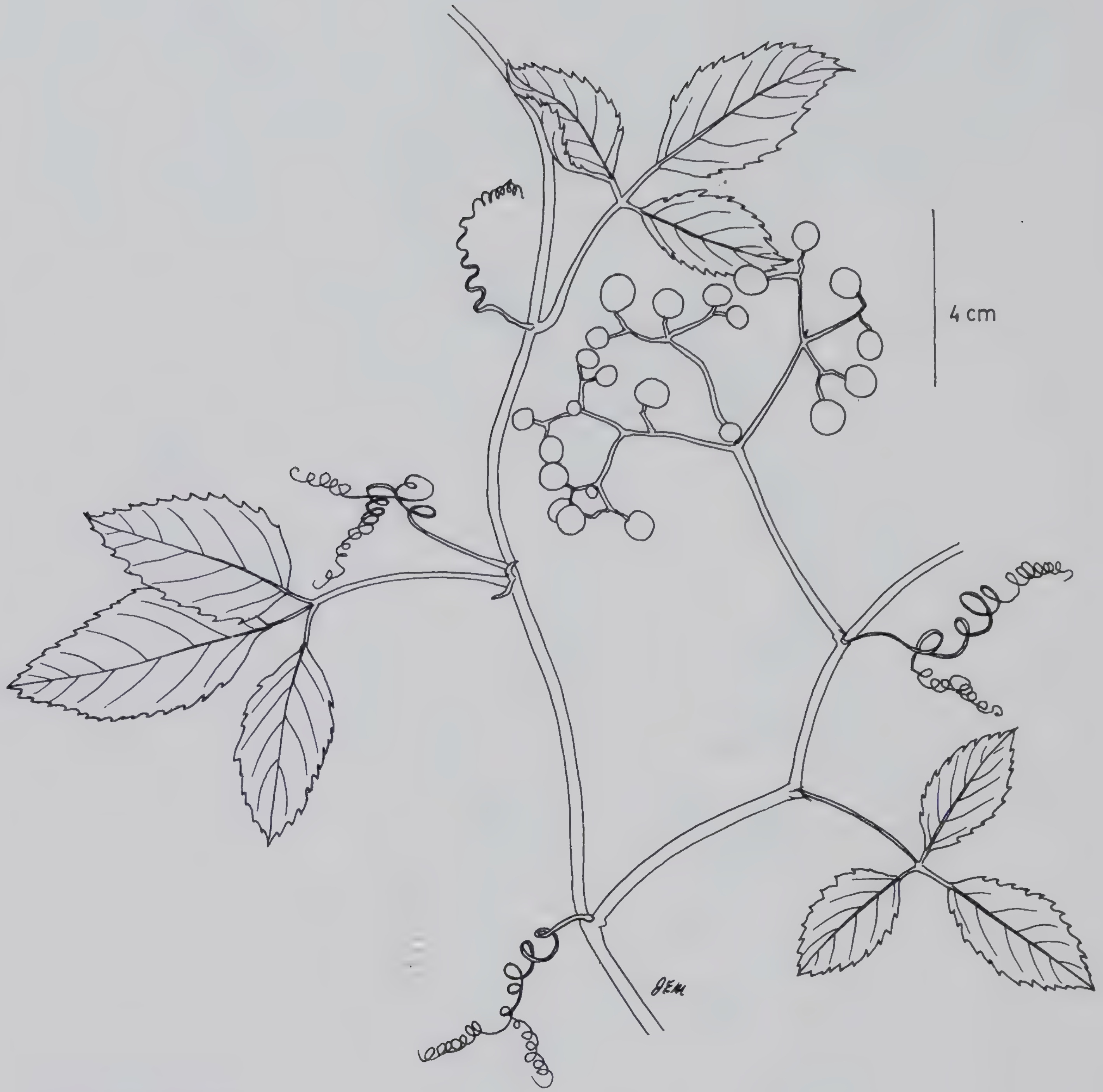
Local name : Jharu ber

Characteristics : A thorny bush. Leaves rounded or ovate, woolly on lower surface; margin smooth. Prickles in pairs; one long, slender and the other stout, recurved. Flowers pale yellow, in axillary clusters. Fruits globose, red when ripe.

Habitat : Found in dry sandy soil near Chicksana Canal; rare.

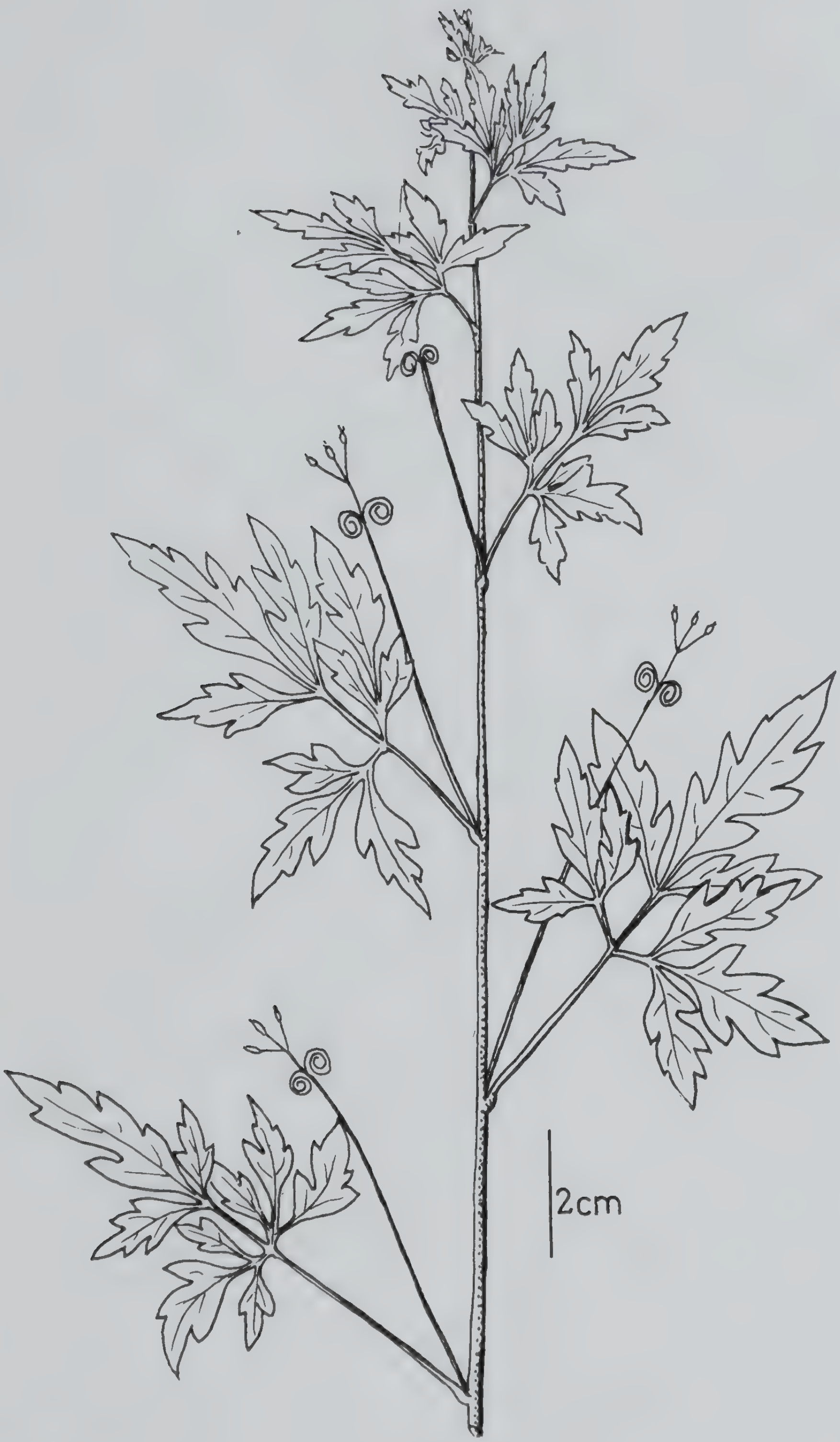
Fl. & Fr. : August to December.

Reference : FBI. 1:633; FUGP. 1:164; FD. 102; FID. 99; FNER. 90



19. VITACEAE

CAYRATIA Juss.
Cayratia trifolia (L.) Domin
Synonyms : *C. carnosa* Gagnep.
Vitis carnosa Wall.
V. trifolia L.
Characteristics : A climbing shrub with slender, branched tendrils. Leaves 3-foliolate, toothed at margin. Flowers greenish-white, arranged in axillary umbels. Fruit a globose drupe, black when ripe.
Habitat : Frequently seen climbing on trees and shrubs.
Fl. & Fr. : August to October.
Reference : FBI. 1:654; FUGP. 1:174; FD. 102; FG. 75; FNER. 89



20. SAPINDACEAE

CARDIOSPERMUM L.

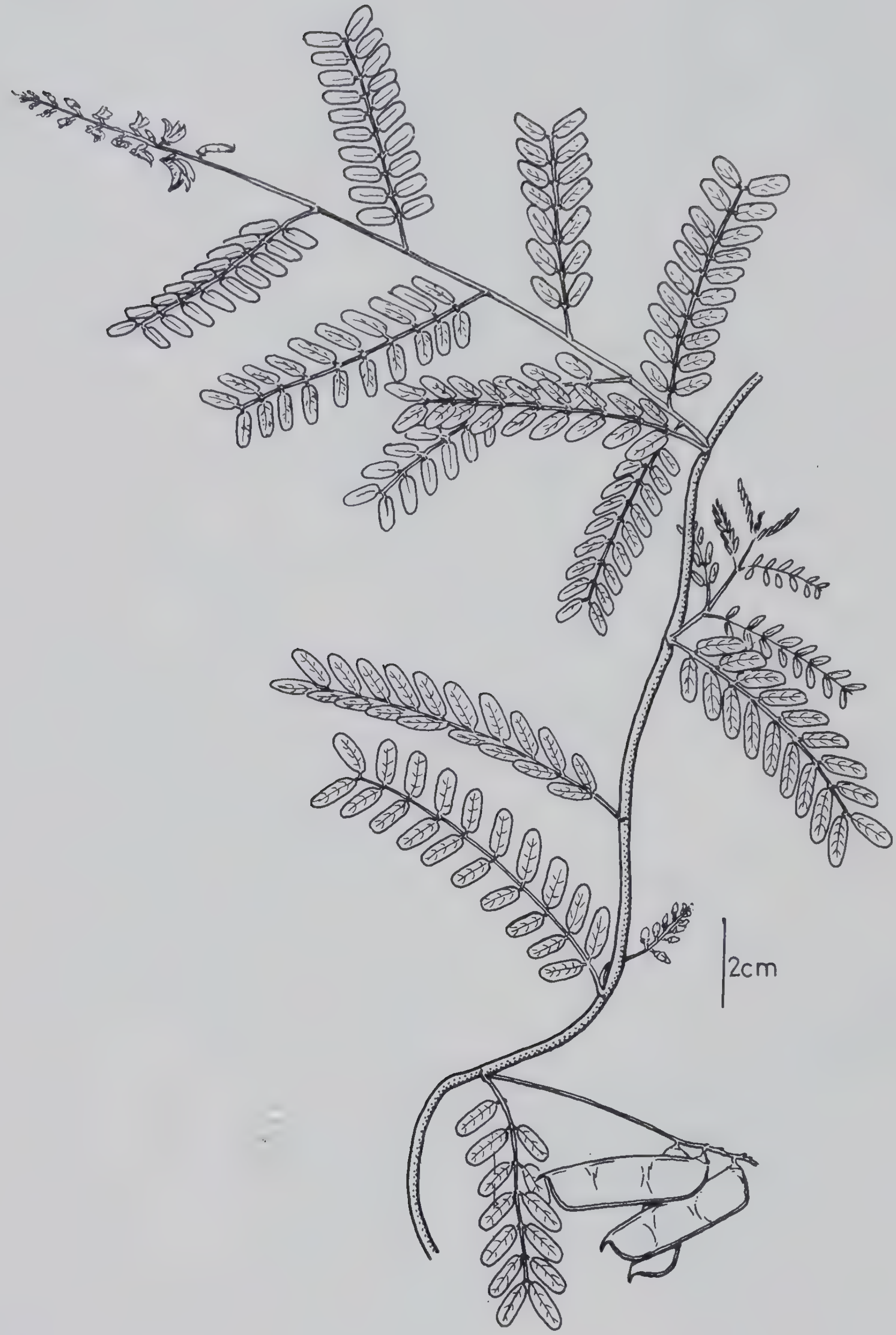
Cardiospermum halicacabum L.

Characteristics : A climbing herb with furrowed stems. Leaves pinnately compound; leaflets deeply divided. Flowers white, small, in axillary umbel; peduncle long, slender, with a pair of tendrils near the apex. Fruit a trigonous, bladder like membranous capsule, winged at the angles. Seeds black.

Habitat : Found in dry sandy areas, climbing on herbs, not common.

Fl.& Fr. : September to November.

Reference : FBI. 1:670; FUGP. 1:178; FD. 103; FID. 101; FNER. 93.

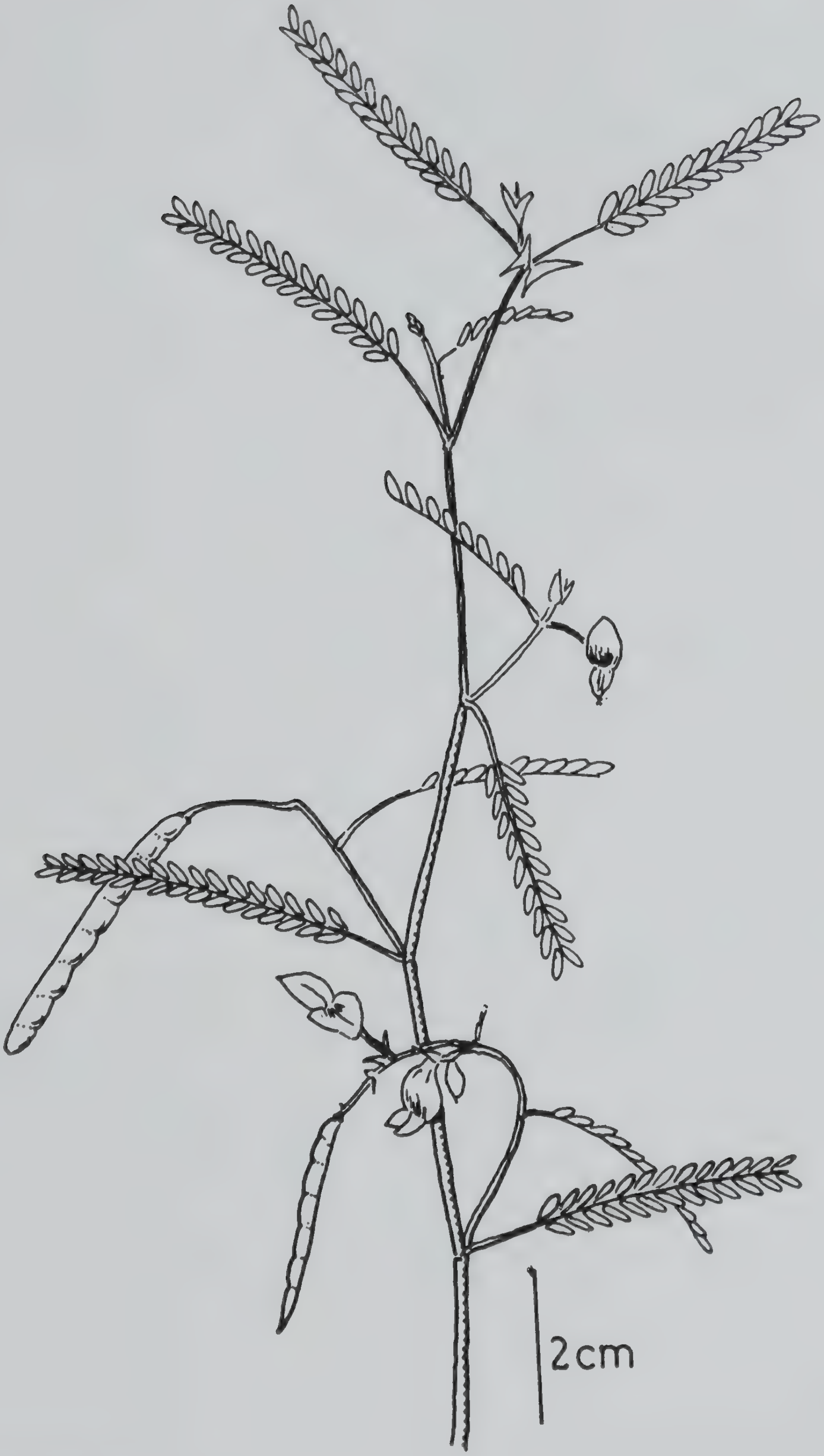


21. FABACEAE (PAPILIONACEAE)

ABRUS Adans.

Abrus precatorius L.

Local name	: Rathi
Characteristics	: A woody climber with pinnately compound leaves. Leaflets 10 to 20, arranged in opposite pairs. Flowers light pink arranged in axillary clusters. Fruit a pod with 3 to 5 seeds. Seeds subglobose, scarlet red, with a black hilum.
Habitat	: Found climbing on trees and shrubs along roadsides.
Fl. & Fr.	: August to February.
Reference	: FBI. 2:175; FUGP. 1:262; FD. 126; FNER. 110



AESCHYNOMENE L.

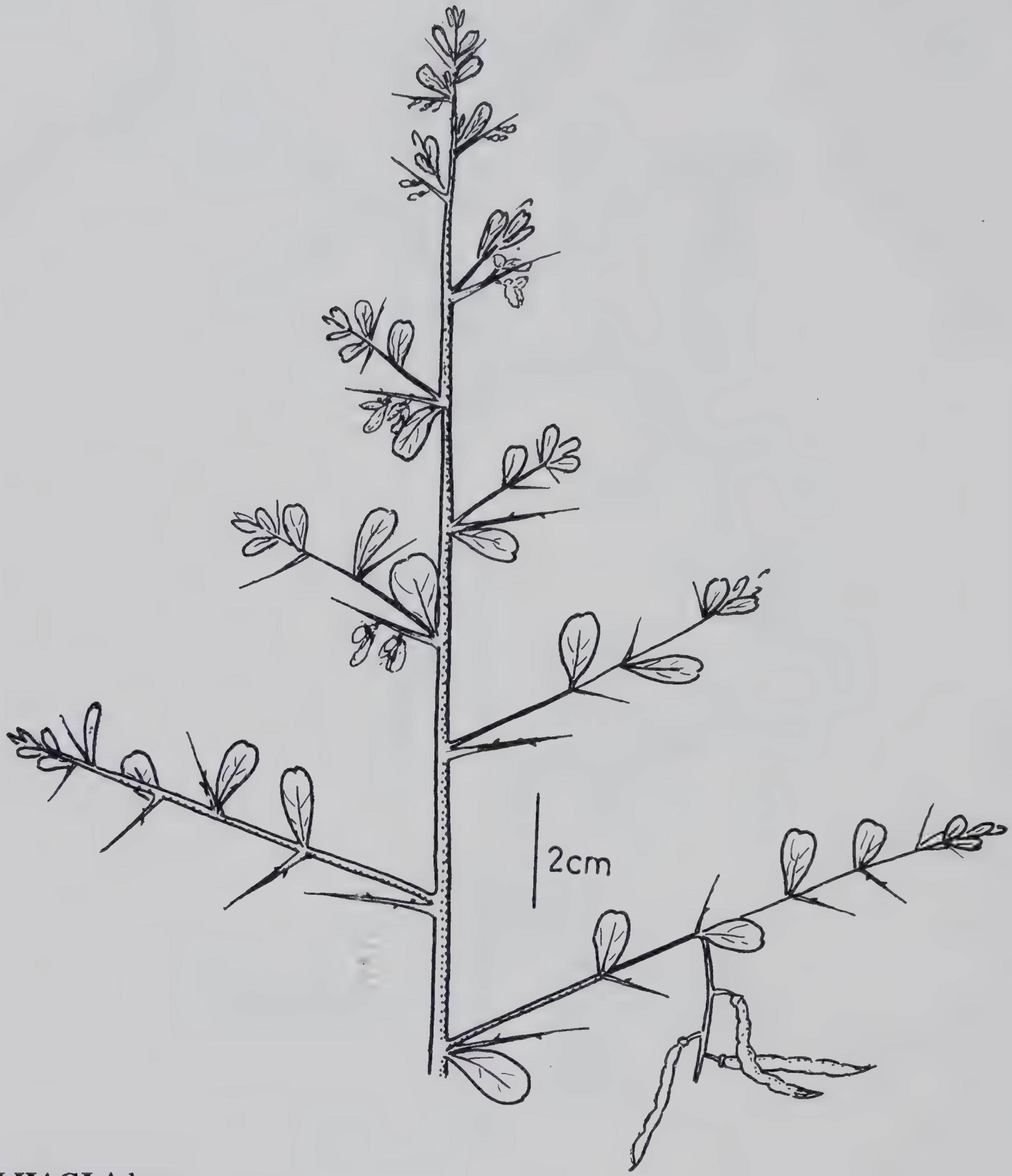
Aeschynomene indica L.

Characteristics : An erect, branching herb, up to 80 cm high. Leaves pinnately compound with 15 to 20 small leaflets, sensitive to touch. Flowers yellow with purple veins, 1 to 4 on axillary racemes. Fruit a long, slightly curved pod with 6 to 8 joints that separate when mature.

Habitat : Very common in open, marshy areas after rainy season.

Fl. & Fr. : September to November.

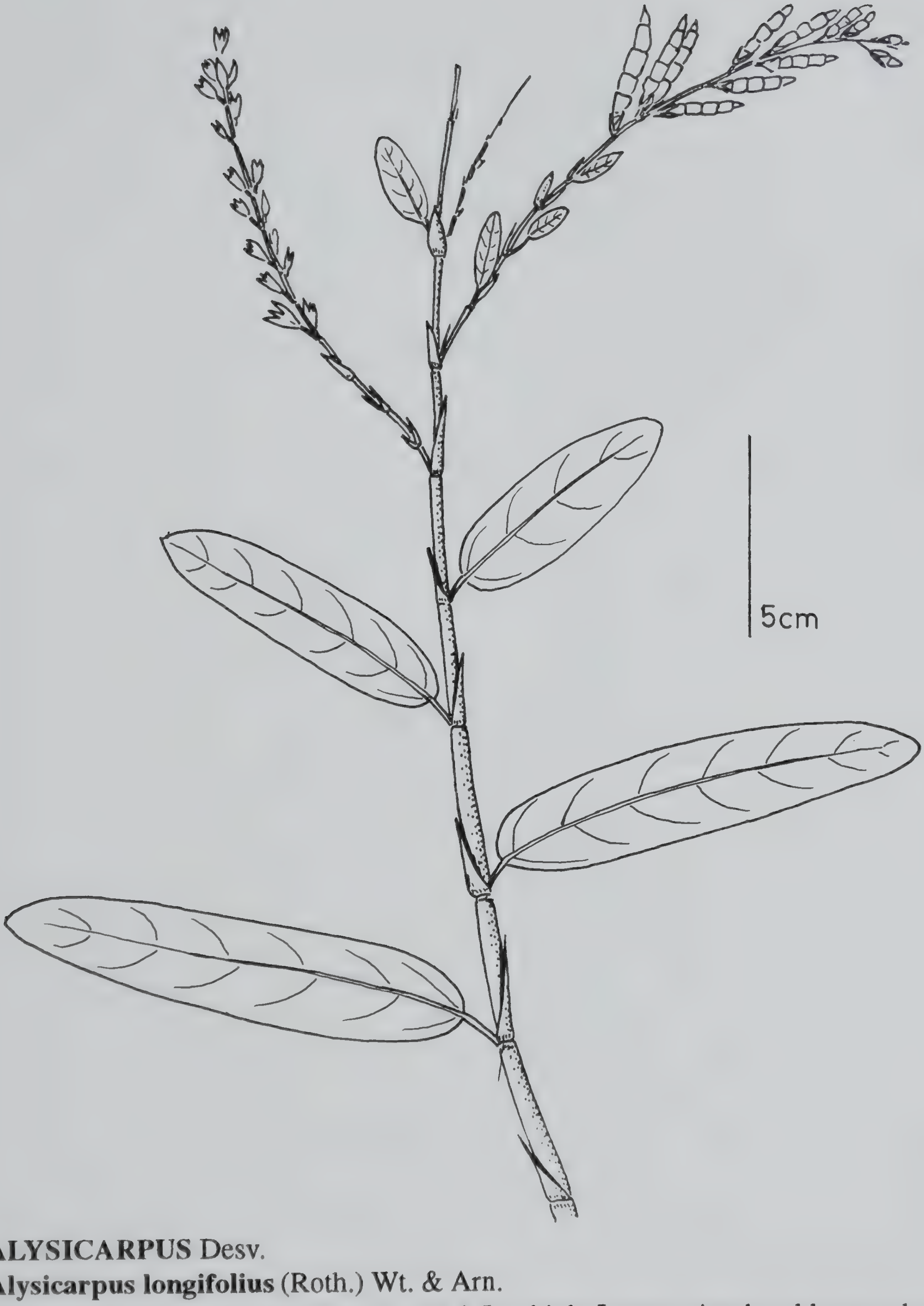
Reference : FBI. 2:151; FUGP. 1:270; FD. 122; FID. 105; FNER. 111



ALHAGI Adans.

Alhagi pseudalhagi (M. Bieb.) Desv.

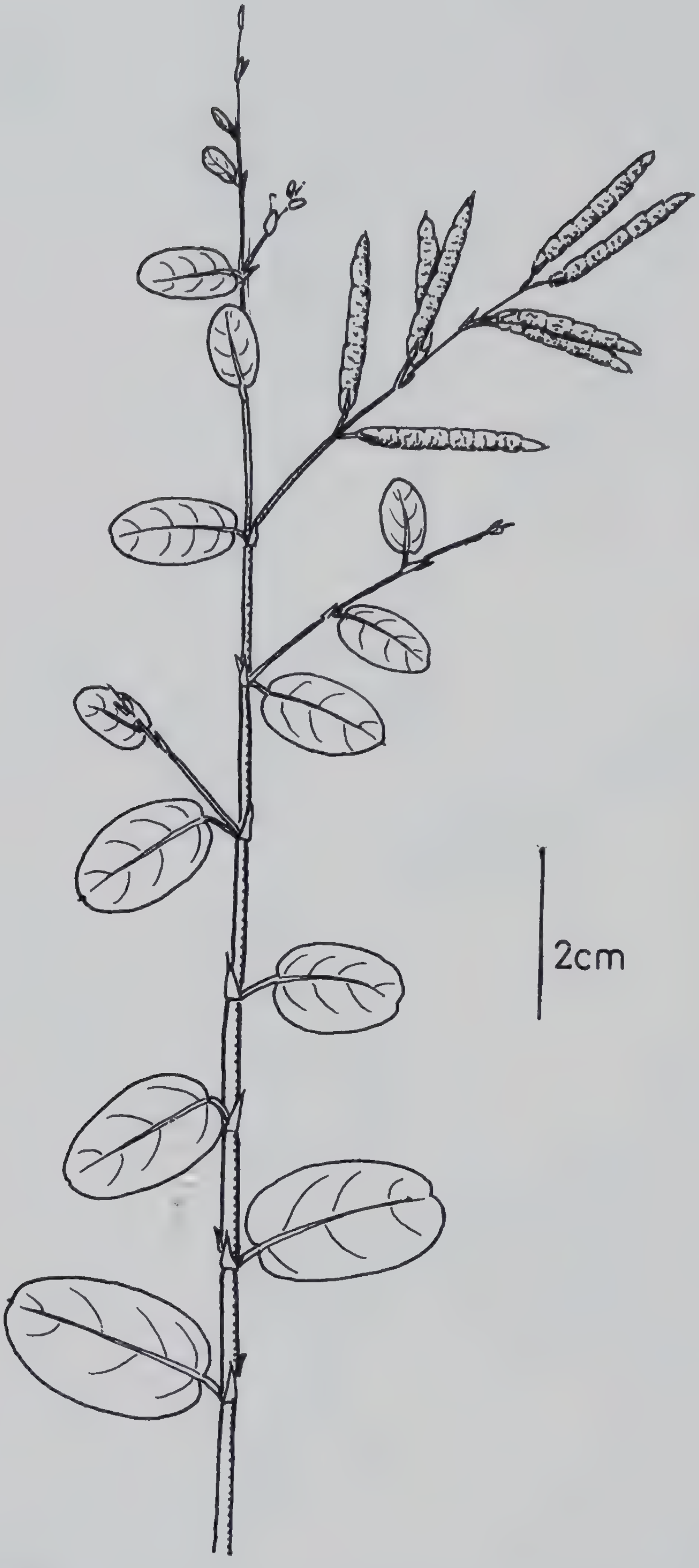
Synonyms : *A. camelorum* Fisch.
: *A. maurorum* auct. non Desv.
Local name : Javasa
Characteristics : A small shrub with long, sharp spines. Leaves simple, small, obovate. Flowers reddish, 5 to 6 arranged along axis of a spine. Fruit a curved pod, constricted between seeds.
Habitat : Open, sandy areas; common.
Fl. & Fr. : June to August.
Reference : FBI. 2:145; FUGP. 1:279; FD. 122; FID. 105; FNER. 111



ALYSICARPUS Desv.

Alysicarpus longifolius (Roth.) Wt. & Arn.

Characteristics	:	An erect herb, up to 1.5 m high. Leaves simple, oblong or lanceolate, with persistent stipules at the base of petioles. Flowers yellow with purple tips, arranged in long racemes. Fruit a pod, 10 to 18 cm long, constricted between the seeds, beaked at apex.
Habitat	:	Found along roadside near Sapan mori; not common.
Fl. & Fr.	:	September to November.
Reference	:	FBI. 2:159; FUGP. 1:278; FD. 125; FID. 107; FNER. 114



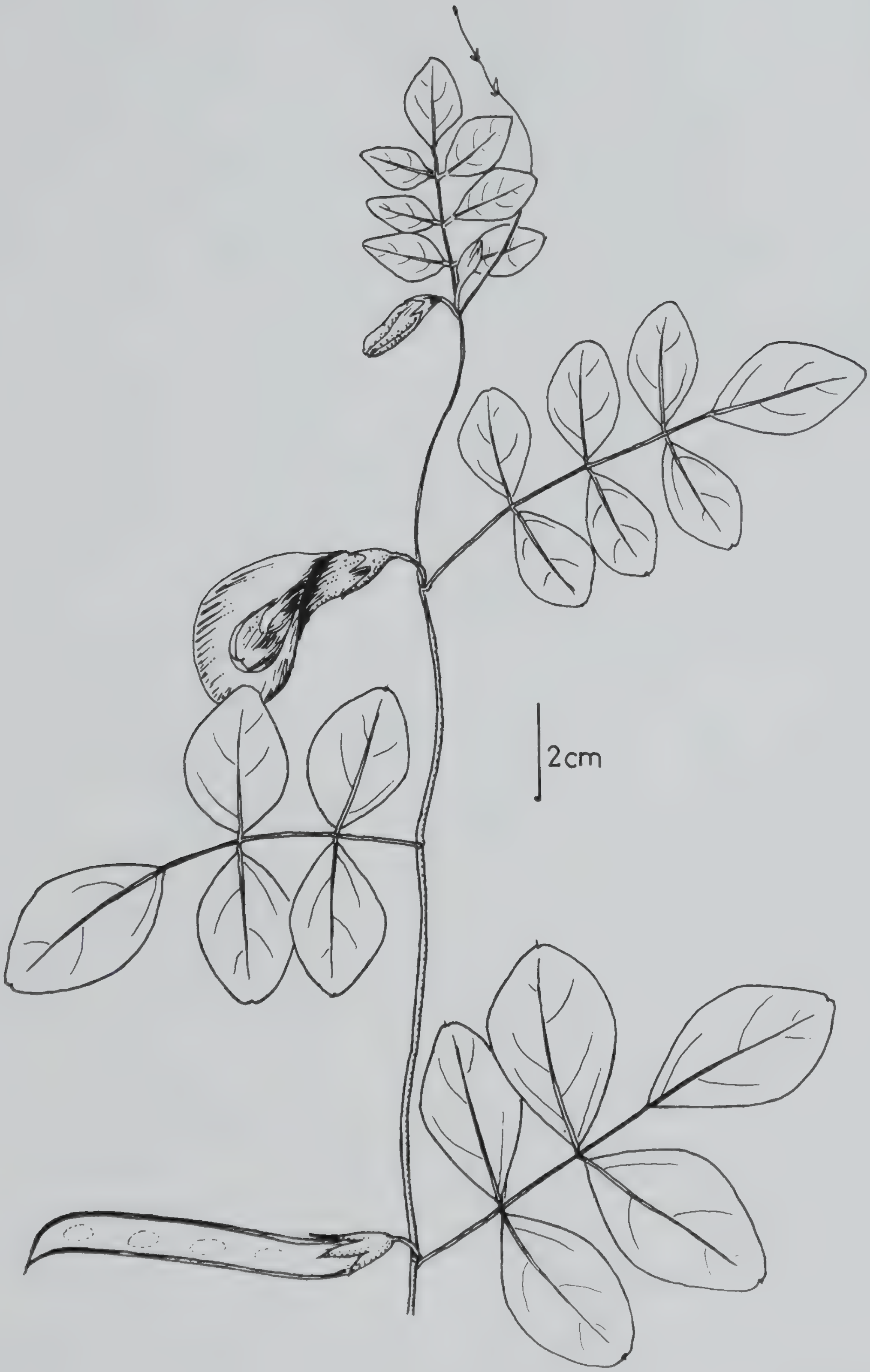
Alysicarpus vaginalis DC.

Characteristics : A prostrate or diffuse herb with ascending branches. Leaves simple, very variable in shape, usually oblong, rounded at apex. Flowers yellow with a pink hue, arranged in axillary or terminal racemes. Fruit a jointed pod, 2 to 3 cm long.

Habitat : Dry, open, sandy areas; not common.

Fl. & Fr. : September to November.

Reference : FBI. 2:158; FUGP. 1:277; FD. 124; FID. 108; FNER. 116



CLITORIA L.

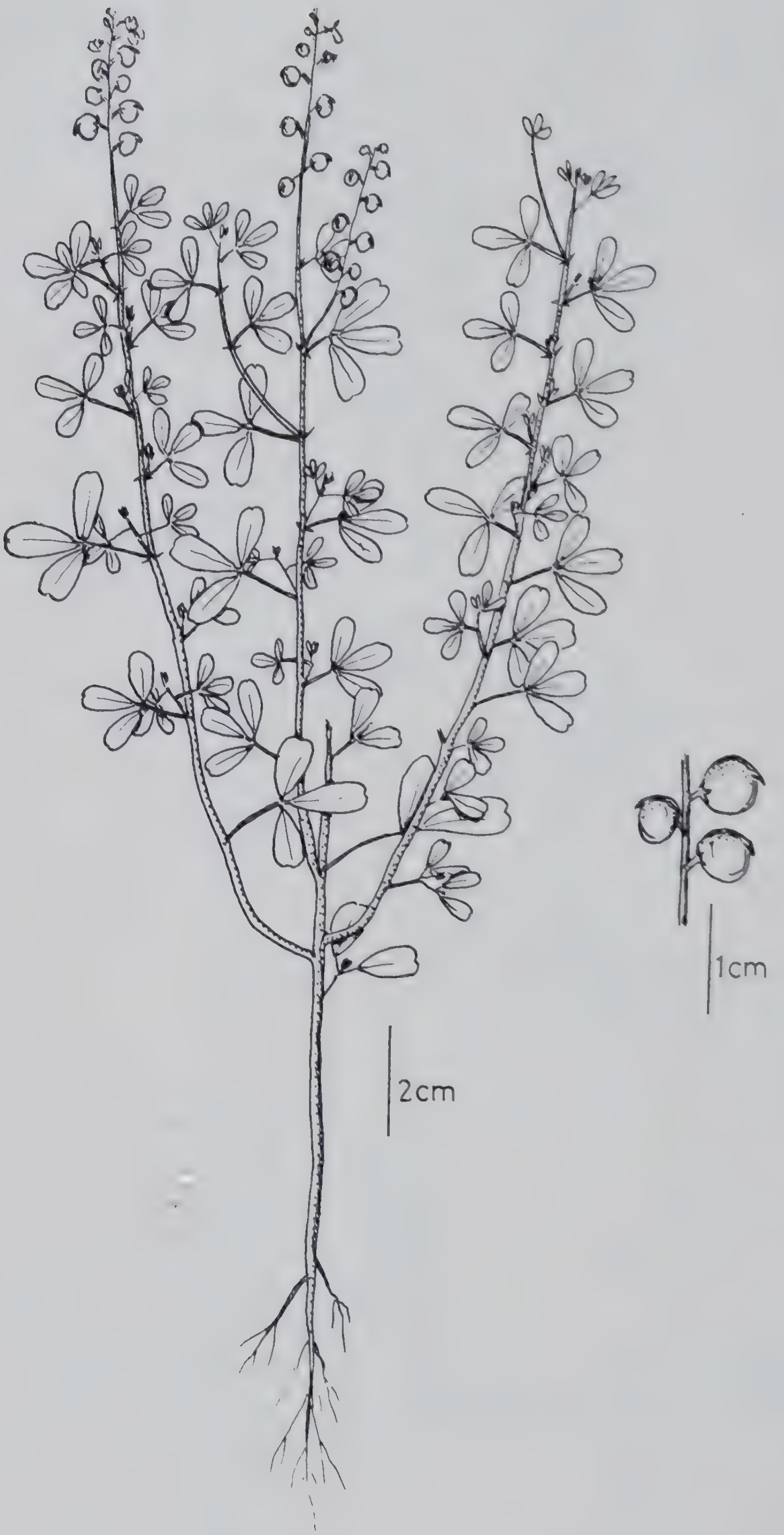
Clitoria ternatea L.

Characteristics : A perennial twiner. Leaves pinnately compound with a terminal leaflet; leaflets ovate. Flowers white or blue with yellowish centre, solitary in leaf axils. Fruit a flat pod. Seeds 6 to 10, black when mature.

Habitat : Found in sandy humous soil; not common.

Fl. & Fr. : July to November.

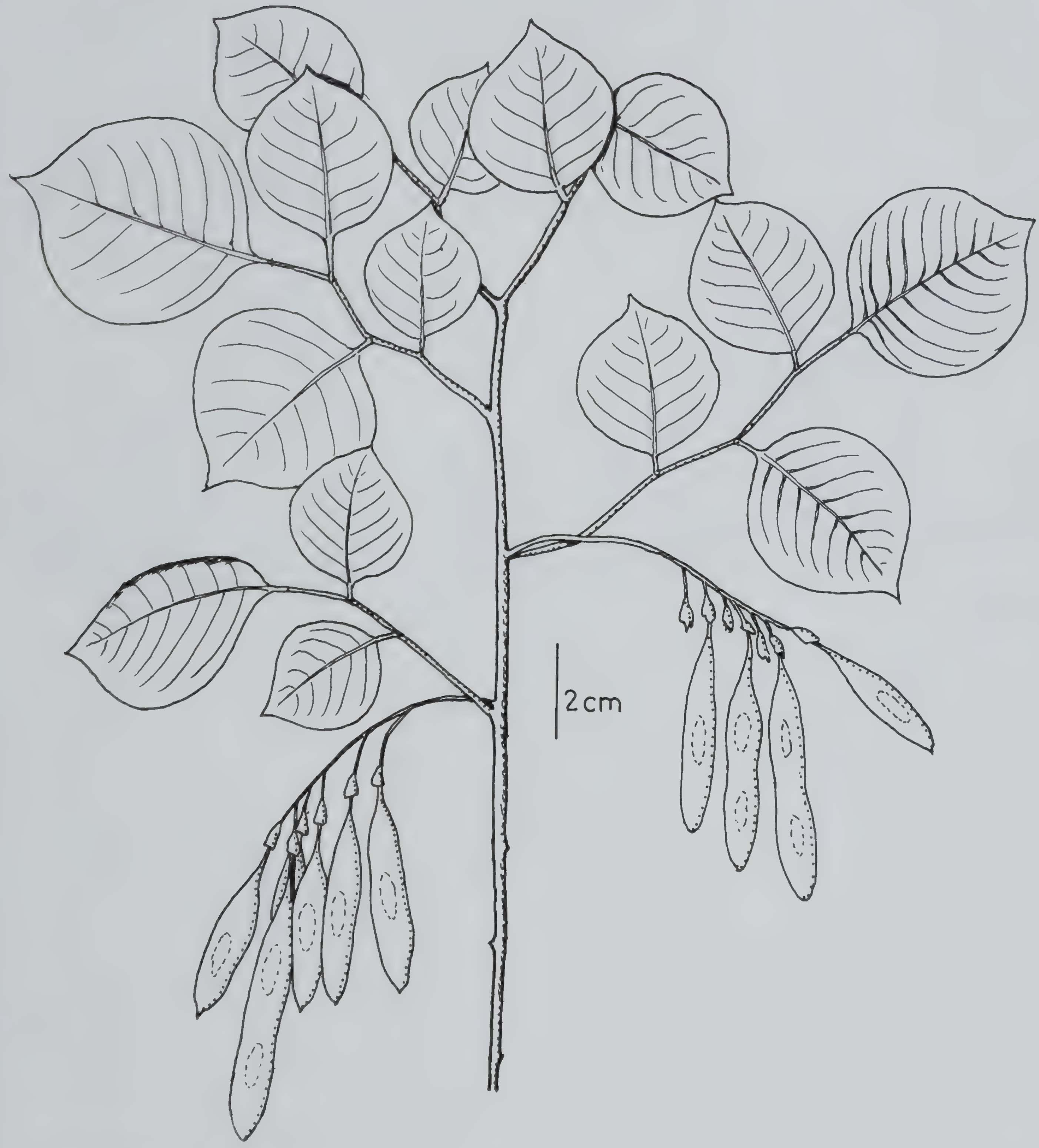
Reference : FBI. 2:208; FUGP. 1:230; FD. 131; FID. 110; FNER. 119



CROTALARIA L.

Crotalaria medicaginea Lamk.

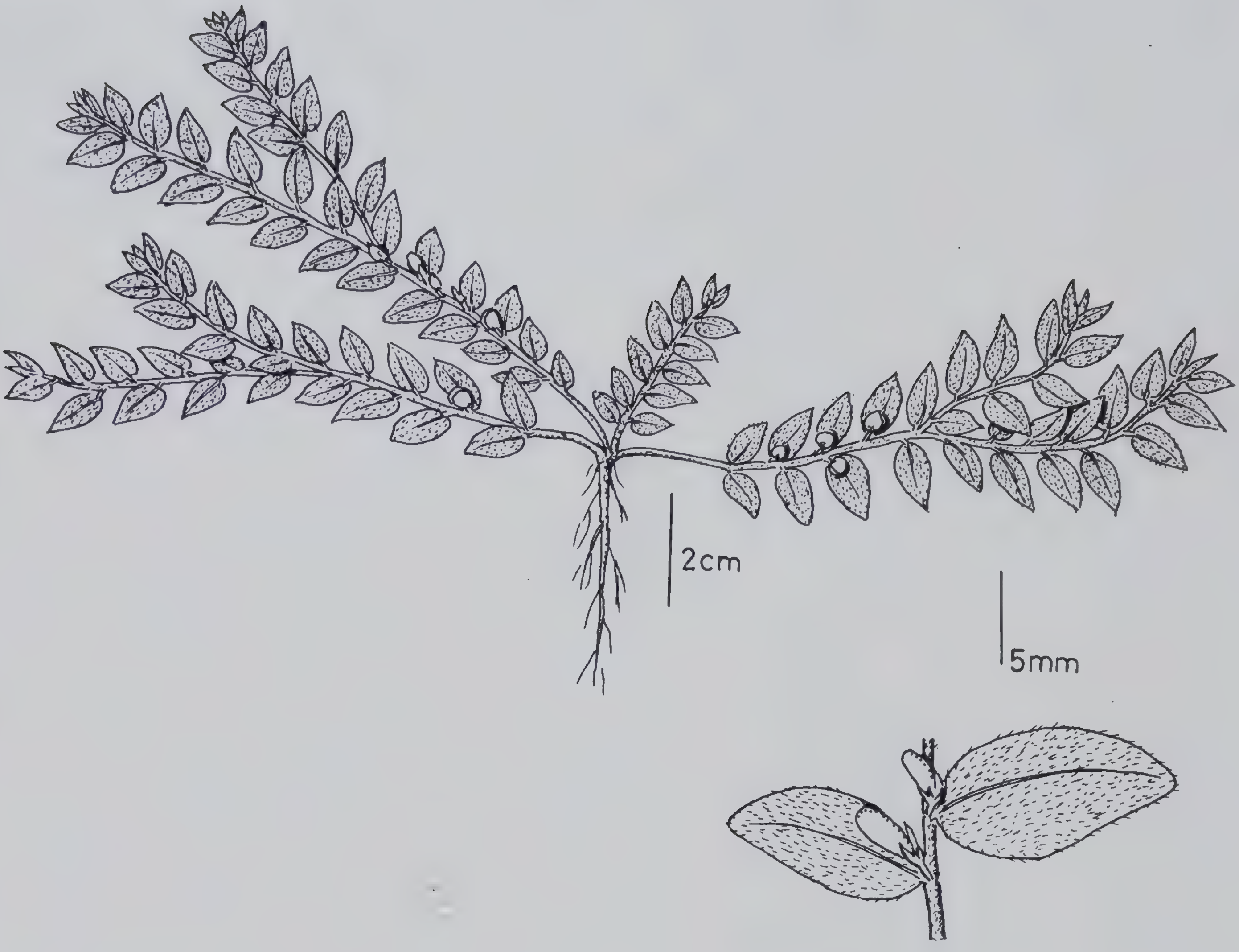
Characteristics : An erect, branched herb with woody root stock. Leaves 3-foliolate; leaflets hairy on lower surface, glabrous on upper surface. Flowers yellow, in axillary or terminal racemes. Fruit a subglobose pod with a curved beak. Seeds 2, glabrous, notched at hilum.
Habitat : Frequently found in moist soil among short grasses.
Fl. & Fr. : August to December.
Reference : FBI. 2:81; FUGP. 1:207; FID. 111; FNER. 121



DALBERGIA L. f.

Dalbergia sissoo Roxb.

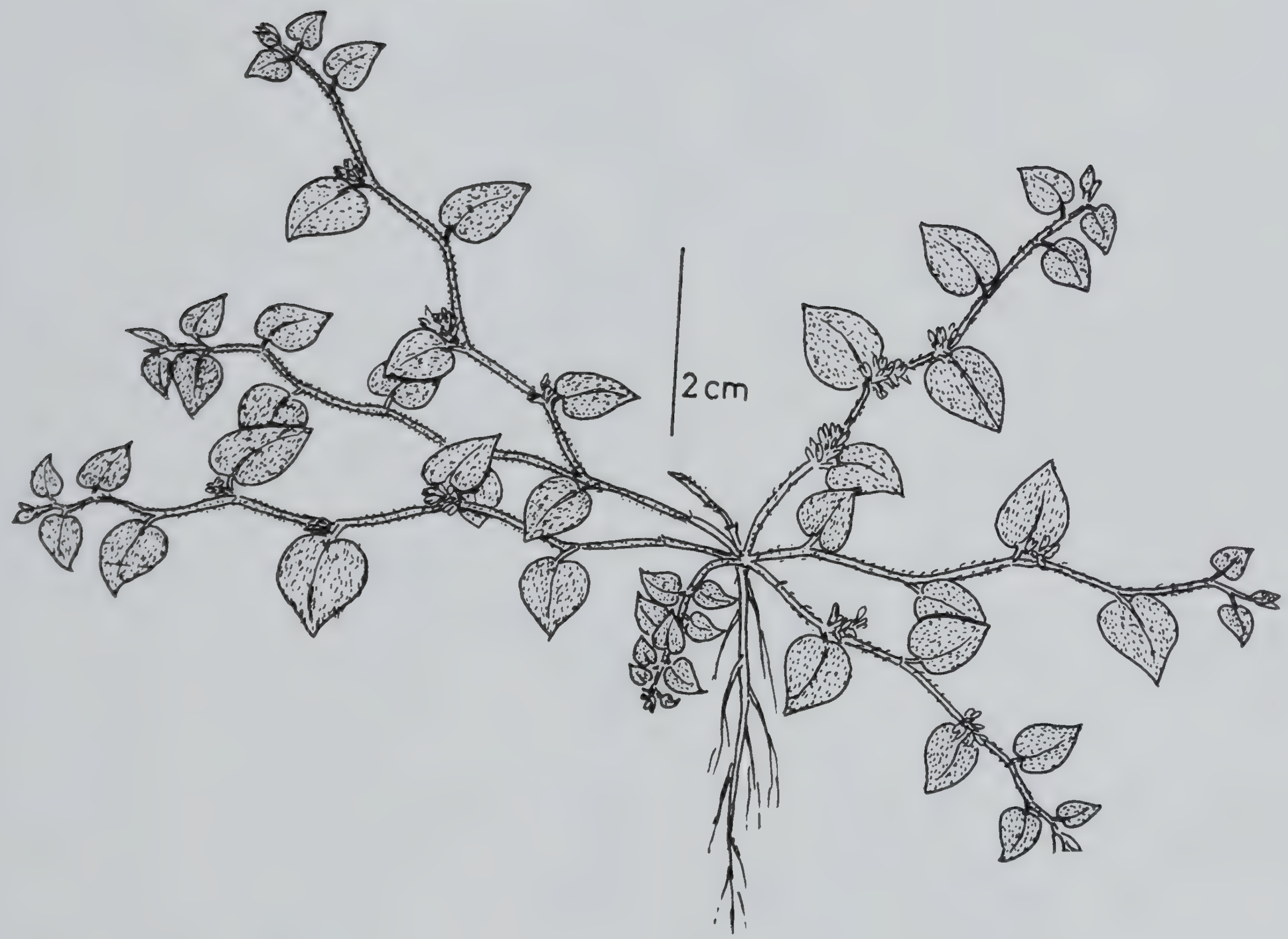
Local name	:	Sisam
Characteristics	:	A medium sized tree. Leaves pinnately compound, with a terminal leaflet; rachis zig-zagged; leaflets rounded, with pointed apices. Flowers pale yellow, arranged in subsessile, axillary panicles. Fruit a flat pod with 1 to 4 seeds.
Habitat	:	Frequently found along roadsides.
Fl.	:	March to May; Fr. : June to August.
Reference	:	FBI. 2:231; FUGP. 1:264; FD. 135; FID. 113



GONIOGYNA DC.

Goniogyna hirta (Willd.) Ali

Synonym : *Heylandia latebrosa* DC.
Characteristics : A deep-rooted, branched, hairy, prostrate herb. Leaves simple, ovate, with unequal bases. Flowers yellow, solitary, subsessile, occur in almost all the leaf axils. Fruit a slightly flattened pod with 1 or 2 seeds.
Habitat : Open areas throughout the uplands; not common.
Fl. & Fr. : August to November.
Reference : FBI. 2:65; FUGP. 1:185; FD. 112; FID. 114



INDIGOFERA L.

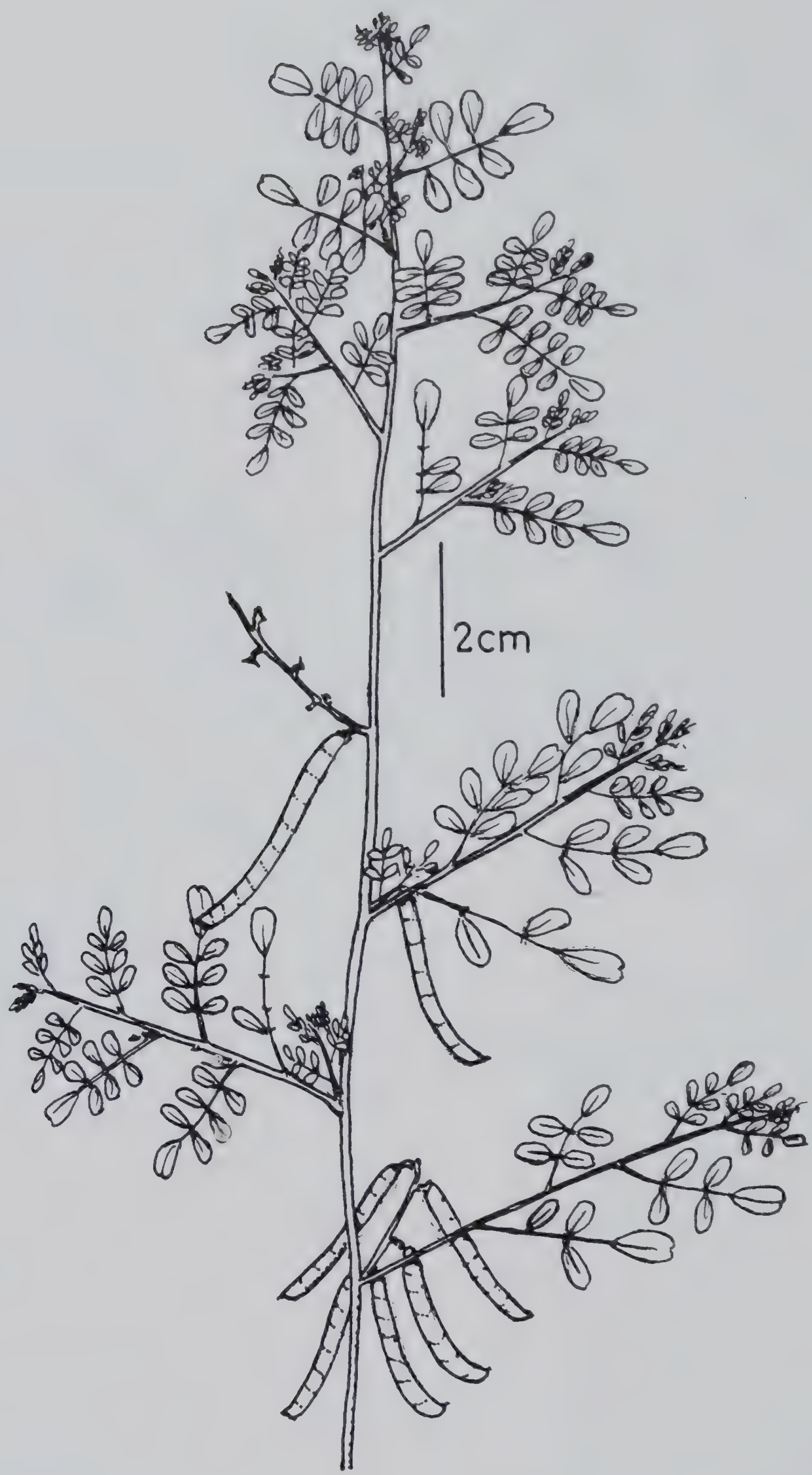
Indigofera cordifolia Heyne ex Roth

Characteristics : A prostrate, many-branched herb, covered with white hairs. Leaves simple, ovate, with white hairs. Flowers red, 4 to 8 arranged in axillary, sessile heads. Fruit a cylindrical pod with white hairs, beaked at apex, 1 to 2 seeded.

Habitat : Dry, open, sandy areas; occasionally found in the park.

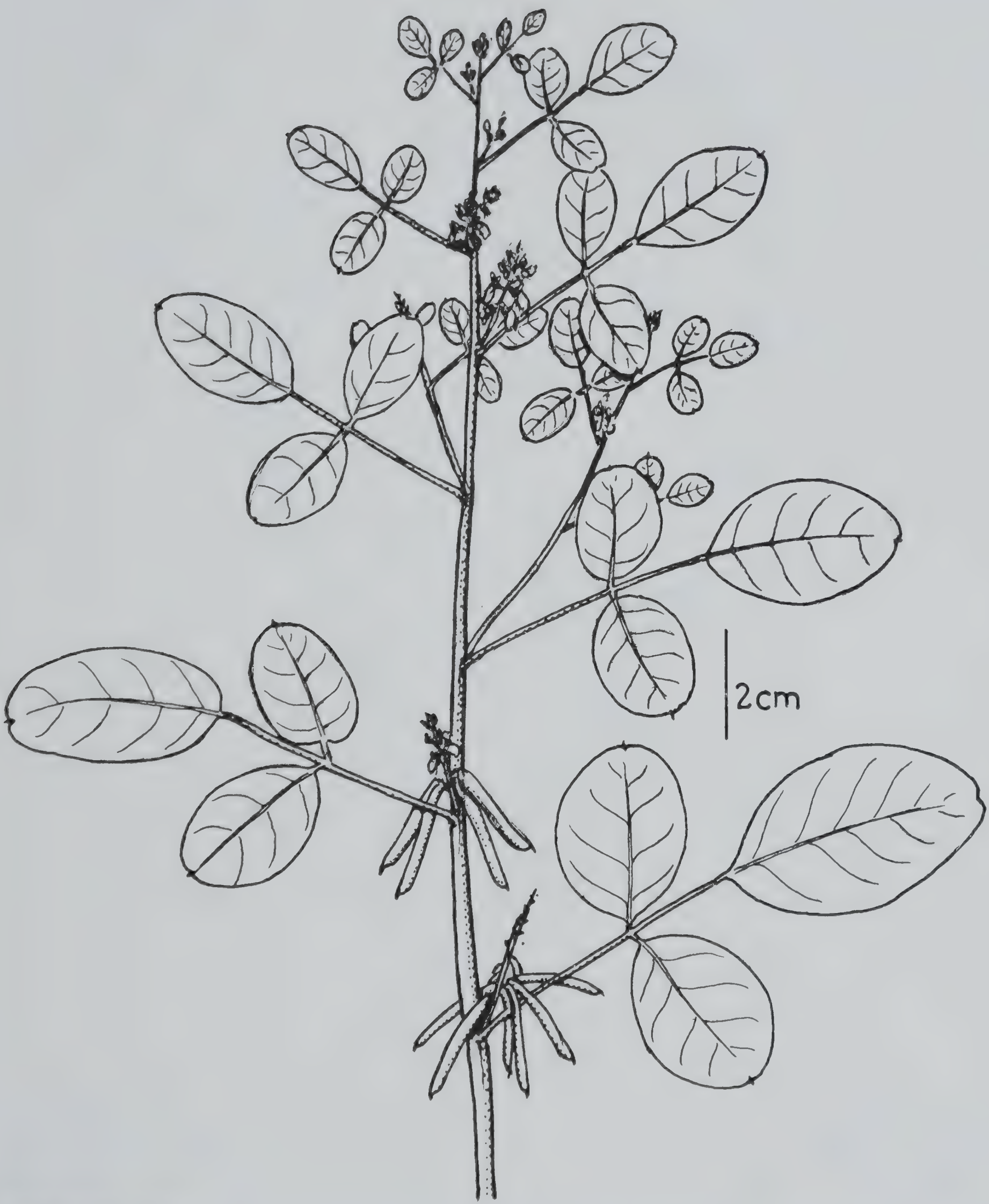
Fl.& Fr. : August to November.

Reference : FBI. 2:93; FUGP. 1:250; FD. 117; FID. 117; FNER. 129



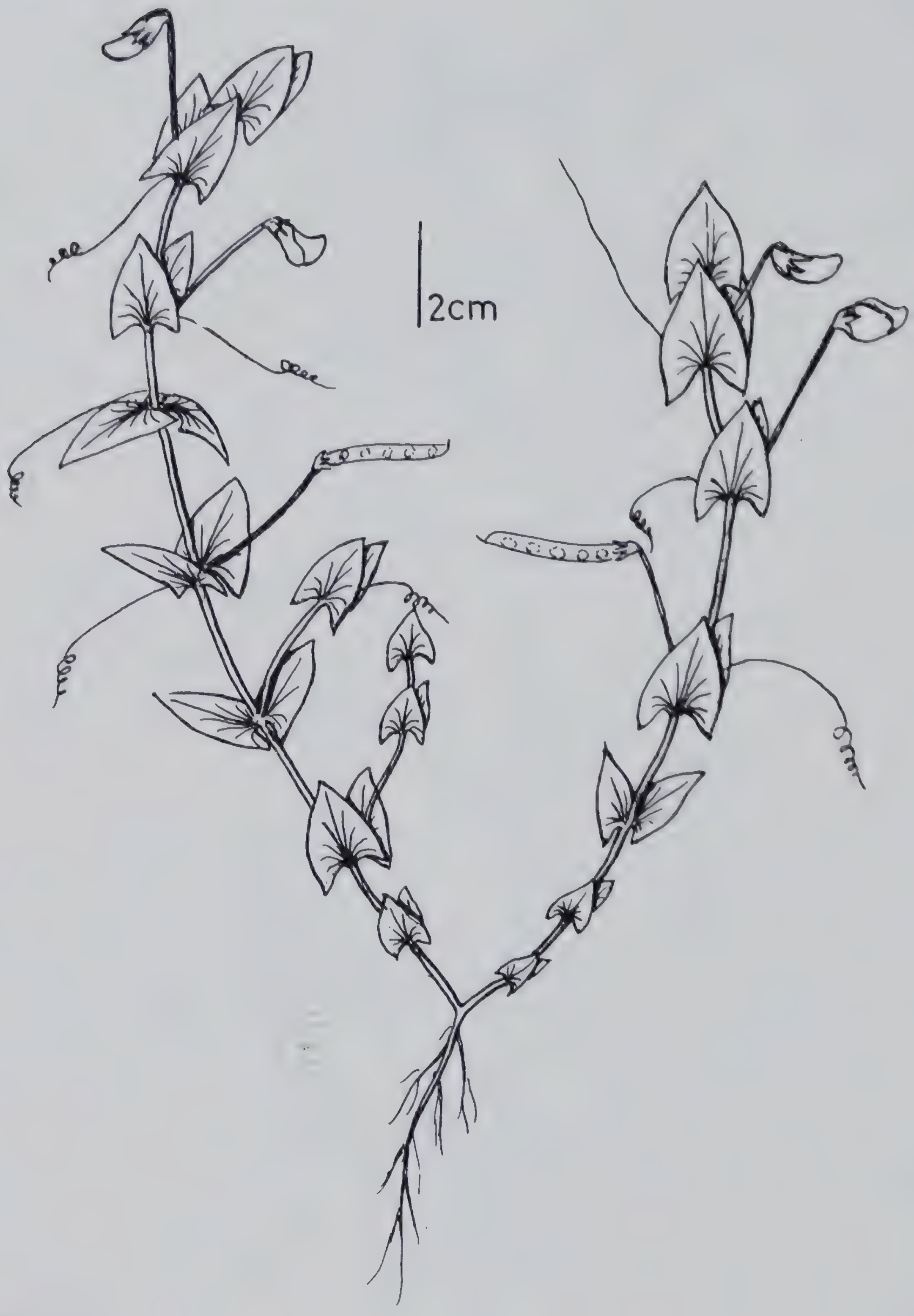
Indigofera tinctoria L.

Characteristics	:	A small, branched, woody undershrub up to 1.5 m high. Leaves pinnately compound, with 9 to 13 leaflets. Flowers pinkish-red, arranged in axillary racemes. Fruit a slightly curved, cylindrical pod.
Habitat	:	Common in dry, sandy soil in open areas.
Fl. & Fr.	:	August to February.
Reference	:	FBI. 2:99; FUGP. 1:254; FD. 118; FID. 120; FNER. 135



Indigofera trita L. f.

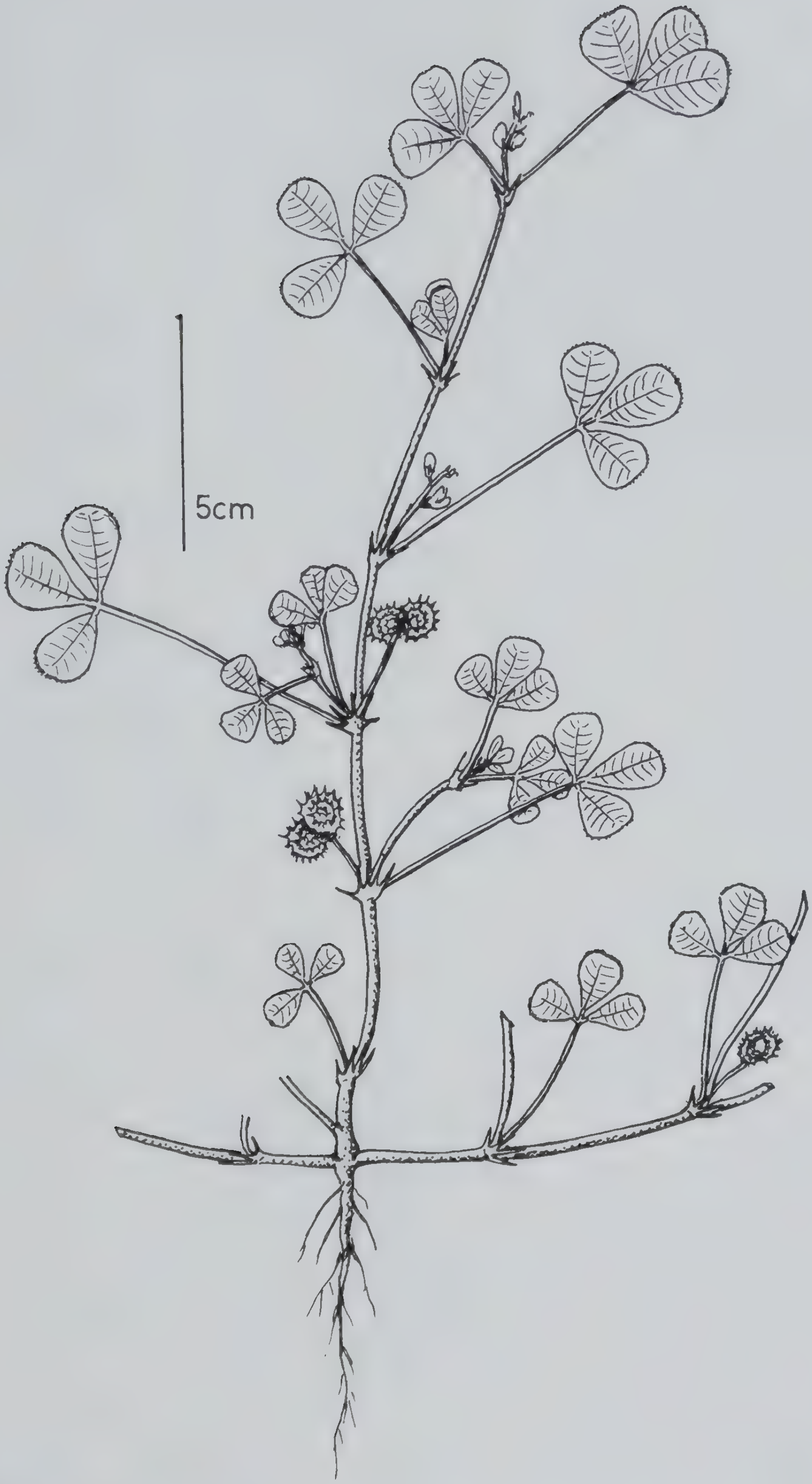
Characteristics	:	A small shrub with greyish branches. Leaves 3-foliolate, with round leaflets. Flowers pinkish, arranged in axillary racemes. Fruit a pointed pod.
Habitat	:	Along roadside near Chitalvan; not common.
Fl. & Fr.	:	September to January.
Reference	:	FBI. 2:96; FUGP. 1:252; FD. 118; FNER. 135



LATHYRUS L.

Lathyrus aphaca L.

Local name	:	Sattar
Characteristics	:	A trailing herb with slender, glabrous, much-branched stem. Leaves modified into slender, unbranched tendrils. Stipules broad, leaf-like. Flowers yellow, 1 to 2 on a 3 to 4 cm long peduncle. Fruit a compressed pod with a beak at apex.
Habitat	:	Common among grasses in wet soil.
Fl. & Fr.	:	February to April.
Reference	:	FBI. 2:179; FUGP. 1:260; FD. 127; FID. 121; FNER. 136



MEDICAGO L.

Medicago polymorpha L.

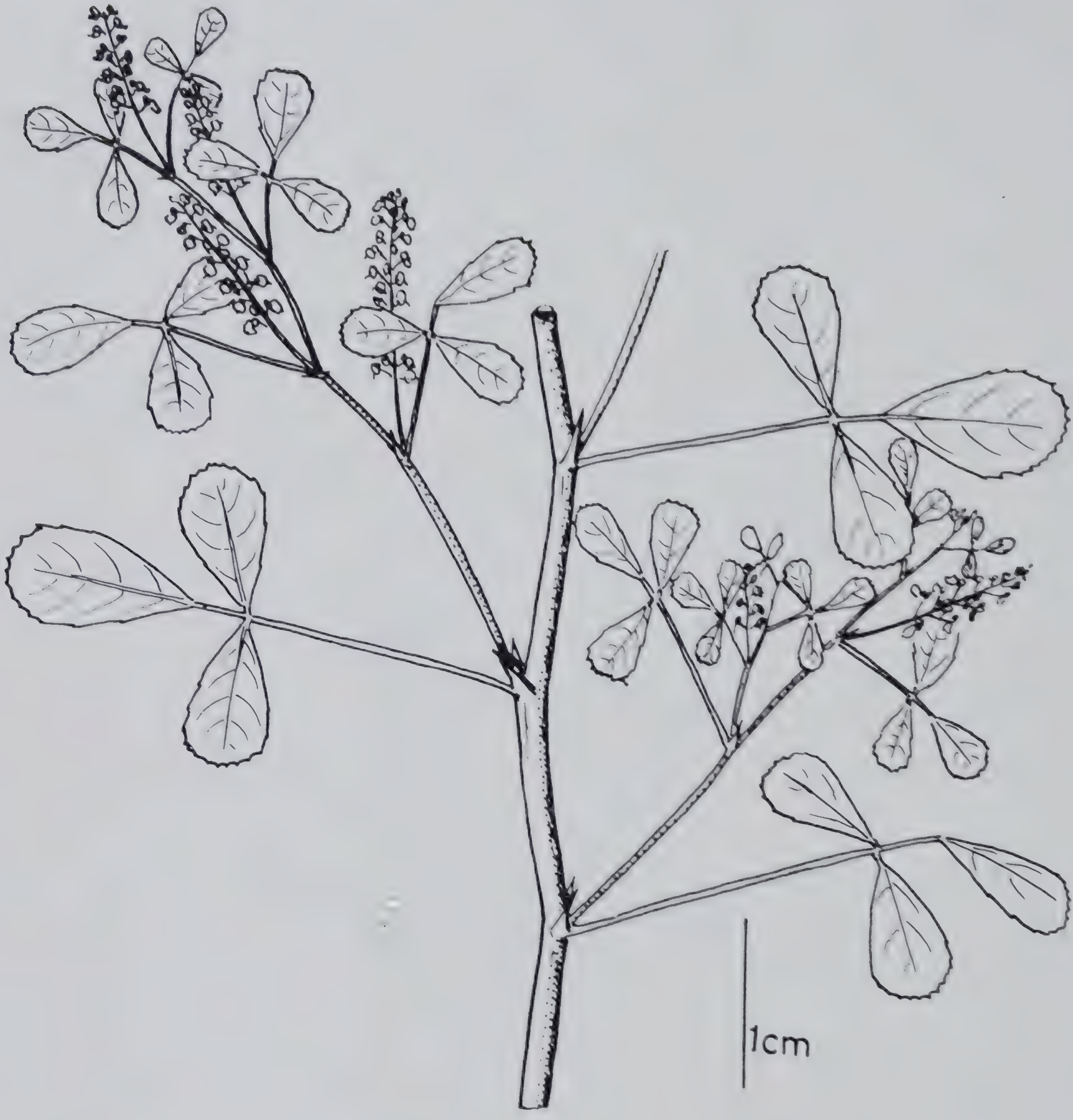
Synonym : *M. denticulata* Willd.

Characteristics : A glabrous herb with prostrate branches. Leaves 3-foliolate, triangular, slightly toothed at margin. Flowers yellow, 4 to 6 arranged on axillary peduncles. Fruits subglobose, of 2 to 4 spirals; margin with 2 rows of spines.

Habitat : Open, dry areas; not common.

Fl. & Fr. : December to March.

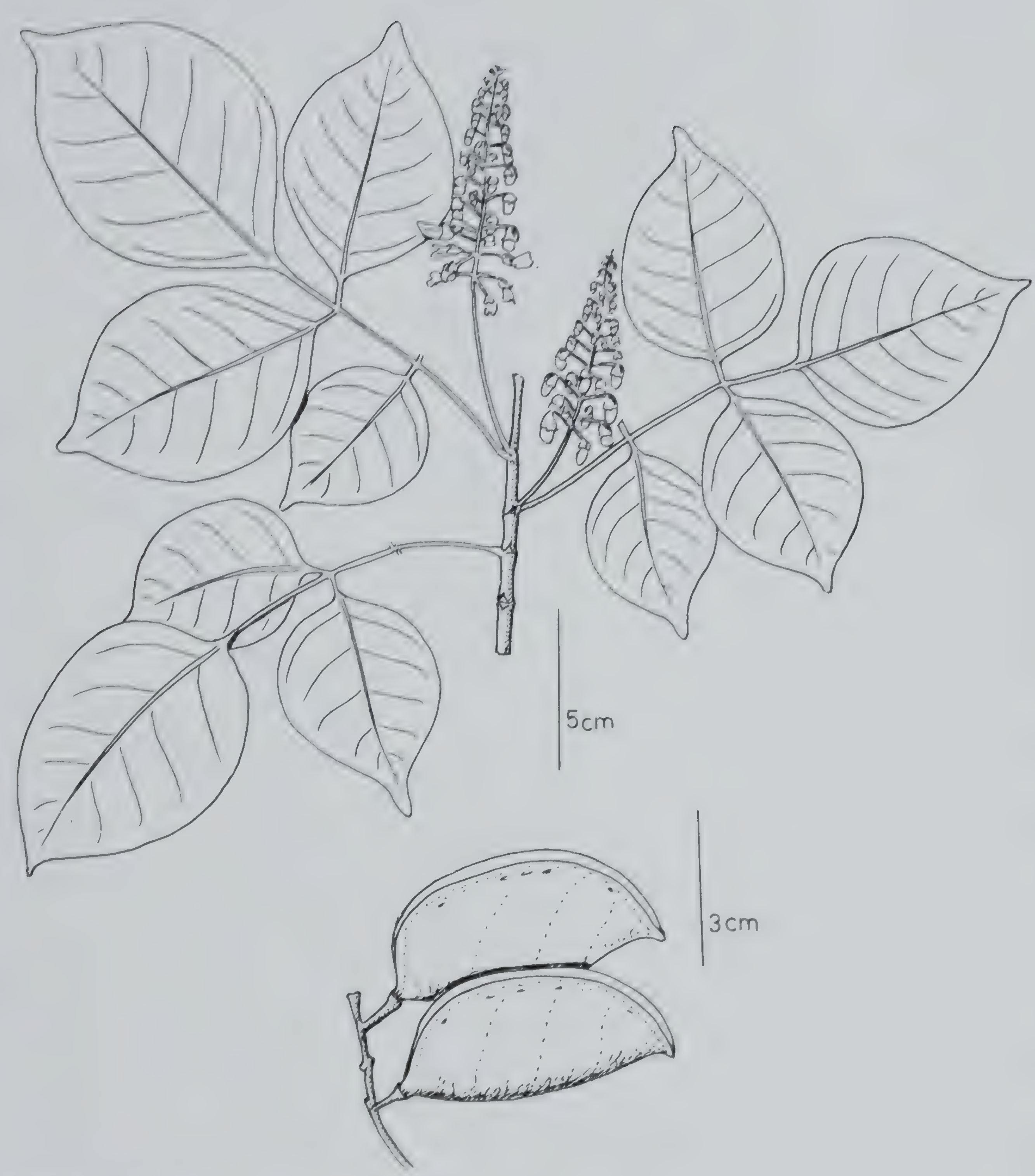
Reference : FBI. 2:90; FUGP. 1:211; FD. 114; FNER. 137



MELILOTUS Mill.

Melilotus indica All.

Synonym	: *M. parviflora* Desf.
Local name	: Morára
Characteristics	: An erect, branched, annual herb. Stems and branches sparsely hairy. Leaves 3-foliolate toothed at margin; petiole grooved. Flowers pale yellow, arranged in dense axillary racemes. Fruits 1-seeded.
Habitat	: Common in moist soil during late winter.
Fl. & Fr.	: January to April.
Reference	: FBI. 2:89; FUGP. 1:208; FD. 116; FID. 122; FNER. 138



PONGAMIA Vent.

Pongamia pinnata (L.) Pierre

Synonyms : *P. glabra* Vent.
Derris indica (Lamk.) Bennet

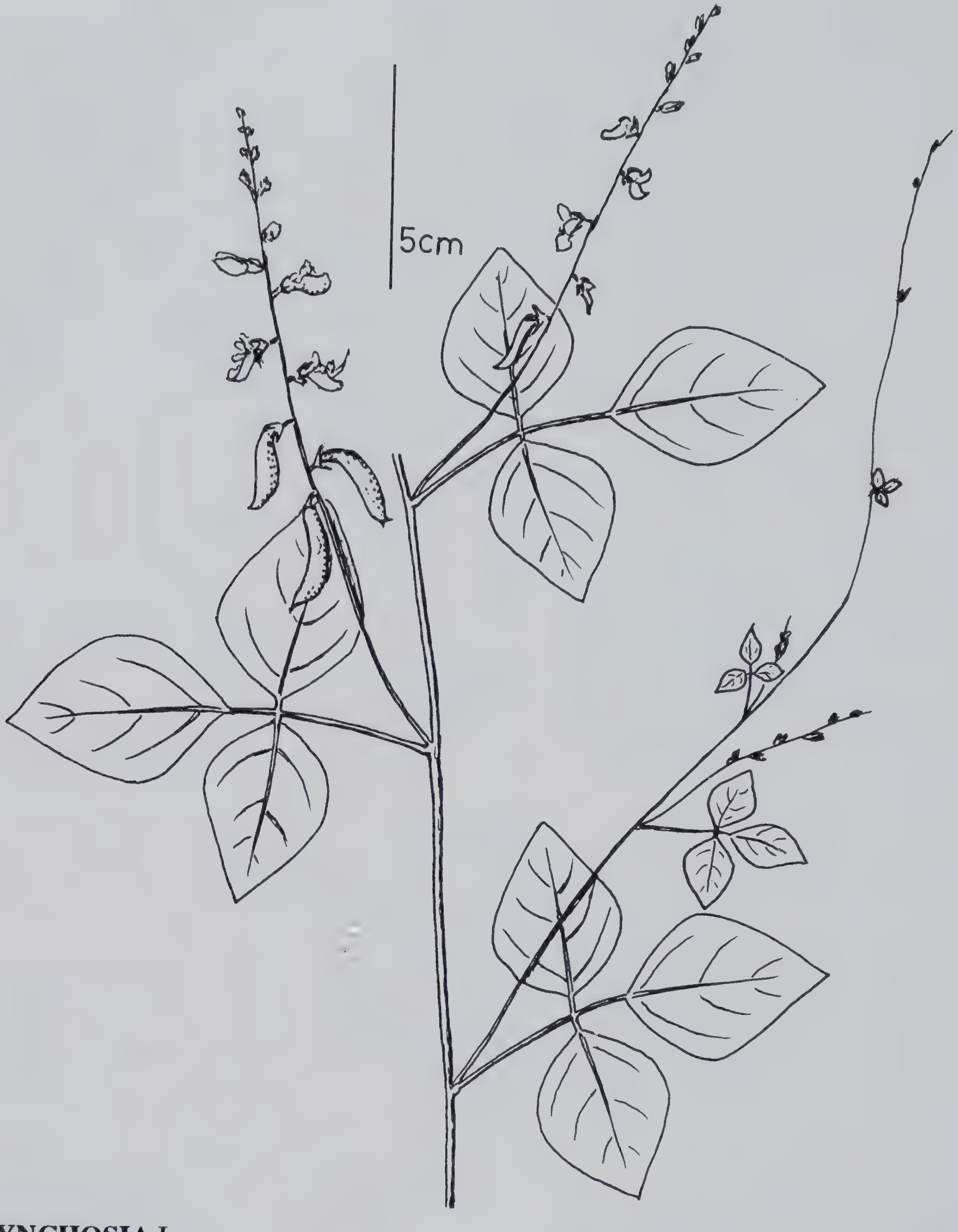
Local name : Karanj

Characteristics : A medium-sized, deciduous tree. Leaves pinnately compound with a terminal leaflet; leaflets 5 to 9, glabrous; margin entire. Flowers pinkish-white, in axillary racemes. Fruit a thick, woody pod, curved at apex.

Habitat : A commonly planted tree.

Fl. & Fr. : May to February.

Reference : FBI. 2:240; FUGP. 1:267; FD. 135; FID. 113



RHYNCHOSIA Lour.

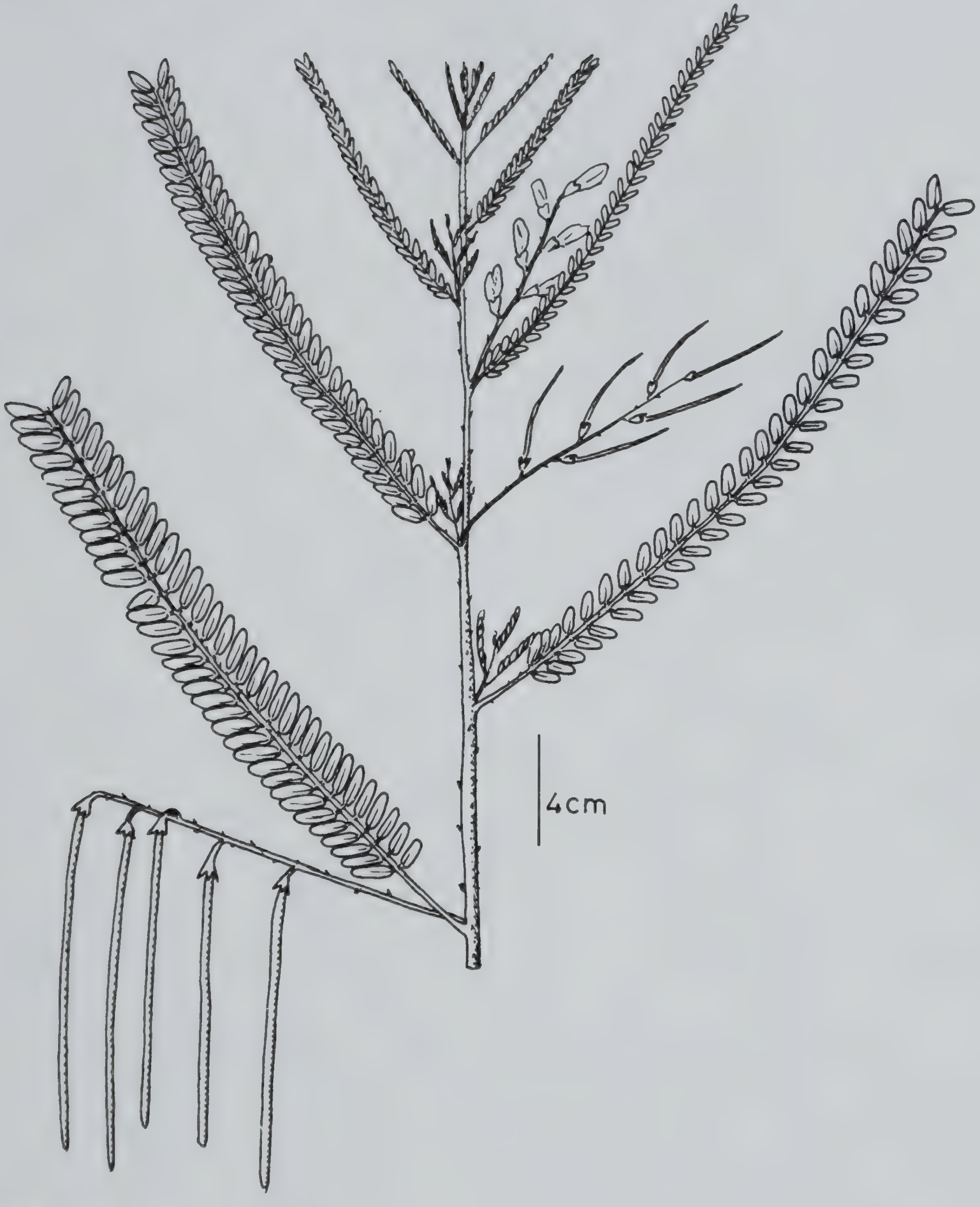
Rhynchosia minima (L.) DC.

Characteristics : A twining annual with slender stem. Leaves 3-foliolate; terminal leaflets diamond-shaped, lateral ones usually with unequal sides. Flowers yellow, arranged in lax, axillary racemes. Fruit a slightly curved pod with 2 seeds.

Habitat : Commonly found twining on herbs and small shrubs along roadsides.

Fl. &Fr. : August to December.

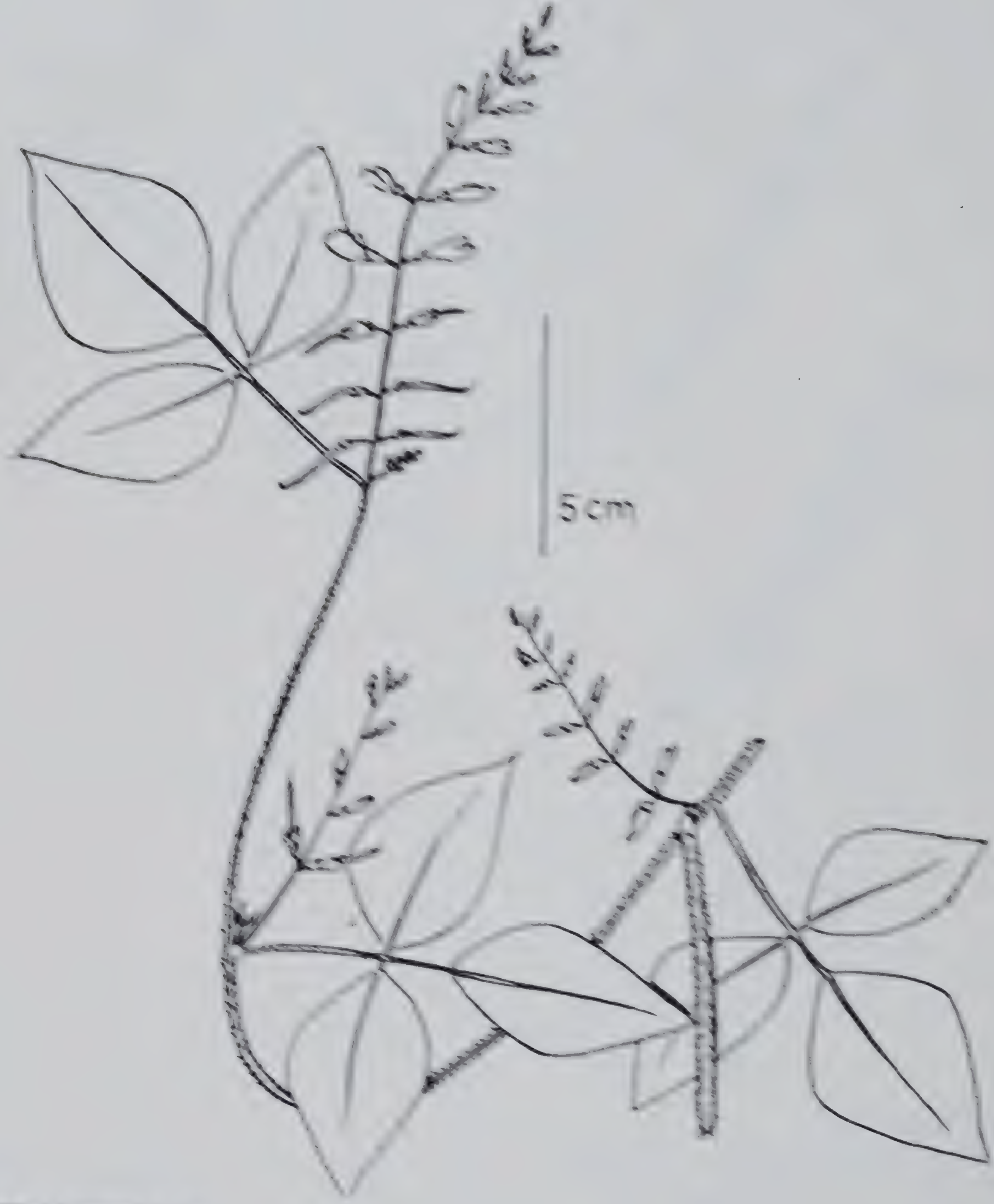
Reference : FBI. 2:223; FUGP. 1:222; FD. 133; FID. 125; FNER. 143



SESBANIA Scop.

Sesbania bispinosa (Jacq.) W. F. Wight

Synonym	:	*S. aculeata* Pers.
Local name	:	Dhadon
Characteristics	:	A soft-wooded shrubby annual, growing up to 2.5 m high. Branches and leaf rachis with minute prickles. Leaves compound; leaflets small, numerous, arranged in pairs. Flowers yellow with red or purple dots; arranged in axillary, drooping racemes of 3 to 6 flowers. Fruit a long pod with 25 or more seeds.
Habitat	:	Common along bunds and dykes after monsoon season.
Fl.& Fr.	:	September to November.
Reference	:	FBI. 2:114; FUGP. 1:243; FD. 119; FID. 127; FNER. 144



TERAMNUS P. Br.

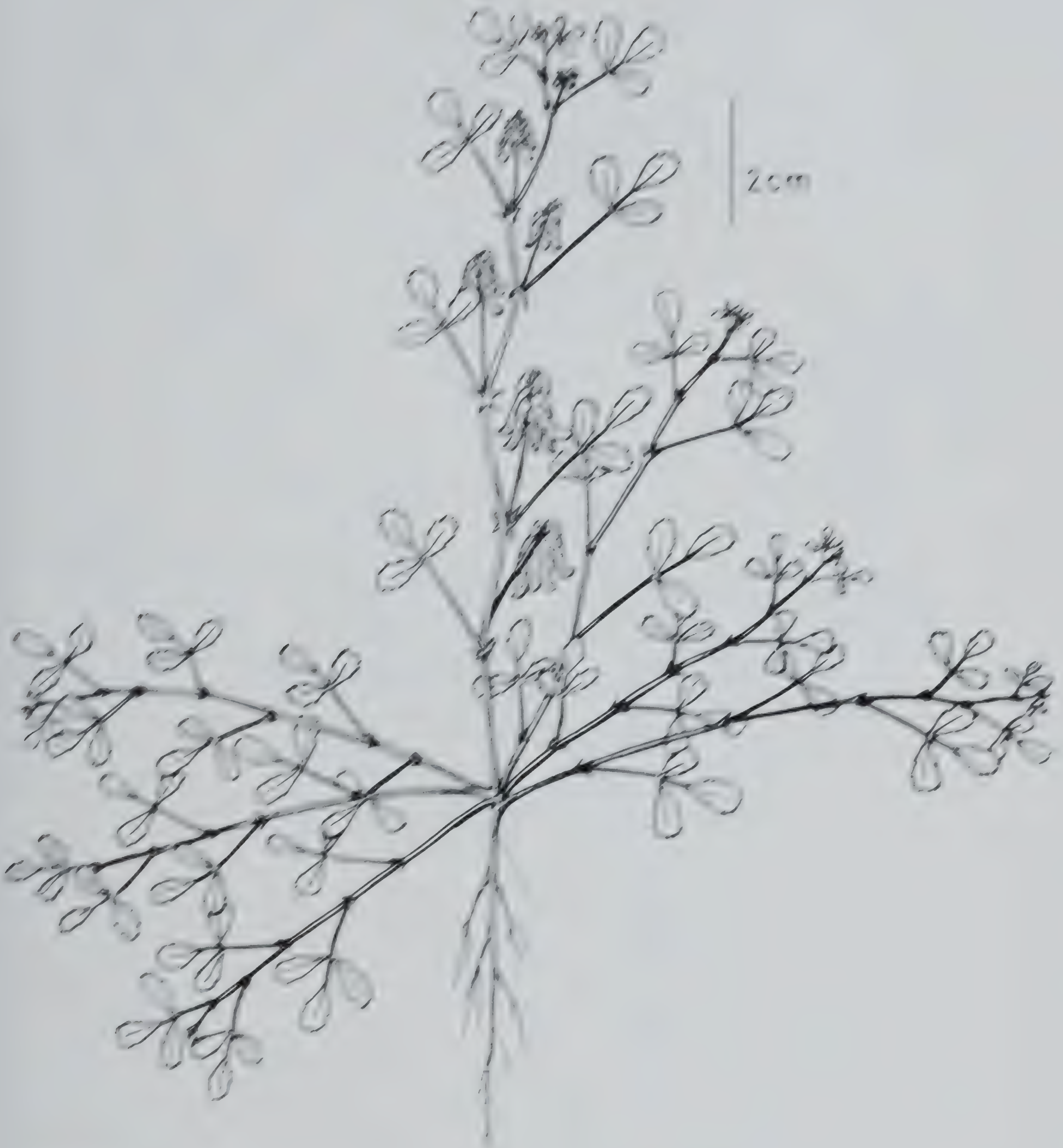
Teramnus labialis (L.) Spreng.

Characteristics : A climber with slender, hairy stems. Leaves 3-foliolate with oval leaflets, lateral leaflets smaller than terminal ones. Flowers pinkish, arranged in axillary racemes. Fruit a linear pod, curved and beaked at apex. Seeds 8 to 10.

Habitat : Found spreading on trees and shrubs along roadsides.

Fl. & Fr. : August to November.

Reference : FBI. 2:184; FUGP. 1:233; FD. 128



TRIGONELLA L.

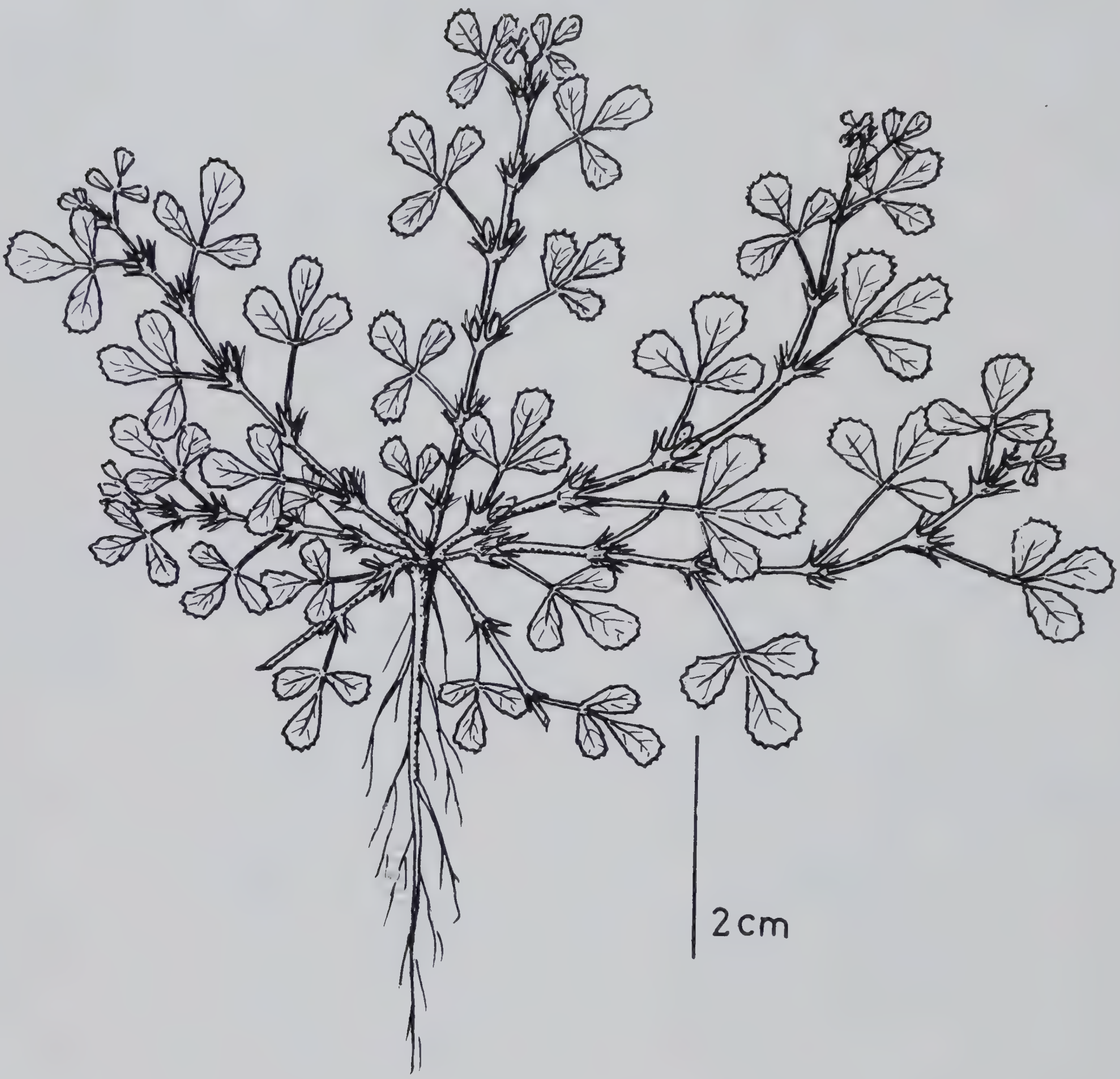
Trigonella hamosa L. subsp. **uncata** (Boiss. & Noe) Townsend

Characteristics : A branched, spreading herb with glabrous stems. Leaves 3-foliolate; leaflets toothed on margins, triangular at base. Stipules deeply cut. Flowers yellow, arranged in a few-flowered, axillary cluster; peduncle ends in a short spine. Fruit a curved pod.

Habitat : Occasionally found in moist soil along the dykes.

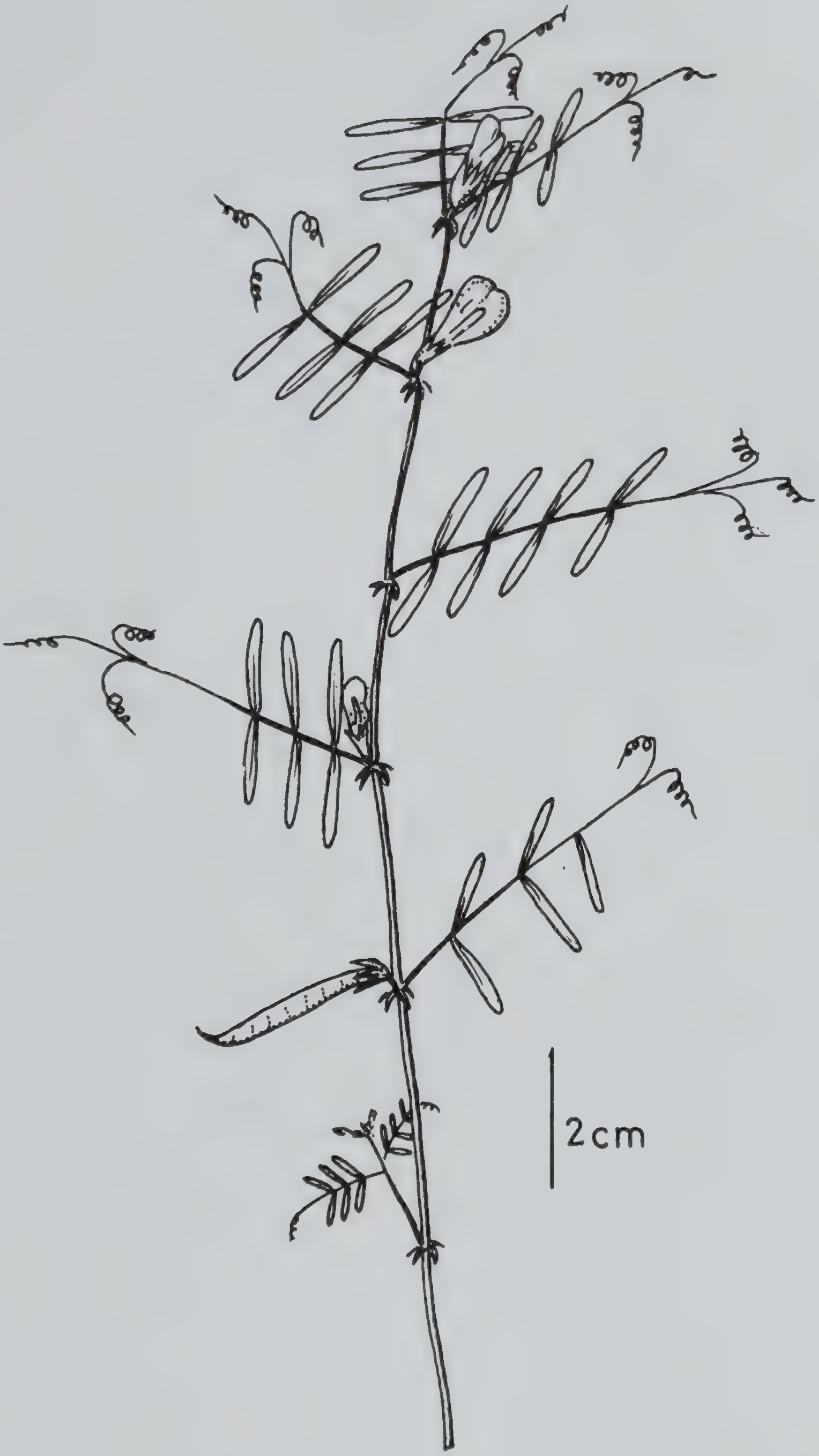
Fl. & Fr. : January to March.

Reference : FBI. 2:88; FUGP. 1:209; FID. 136



Trigonella occulta Del.

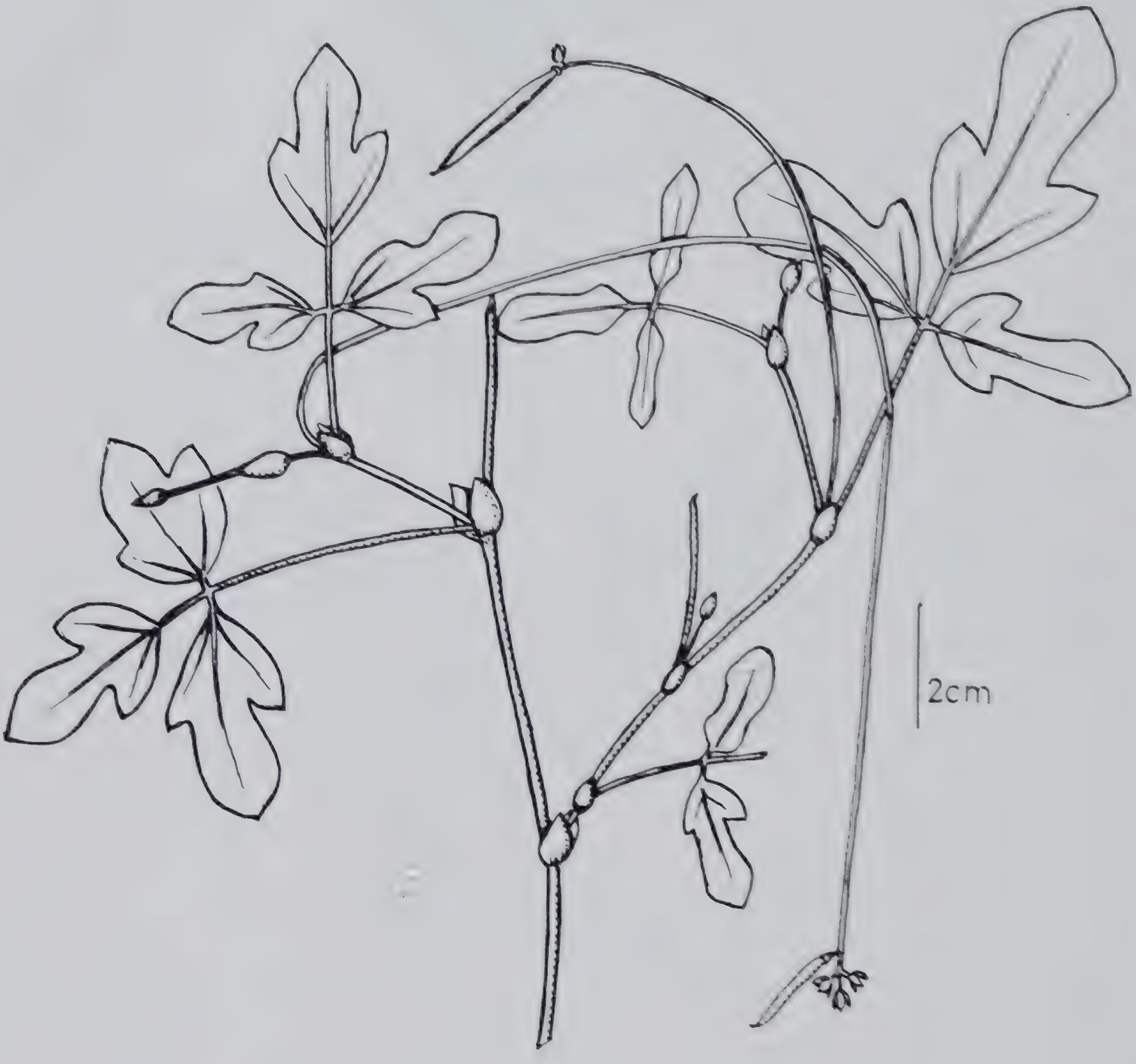
Characteristics	:	A branched, prostrate herb with glabrous to sparsely hairy stems. Leaves 3-foliolate; leaflets triangular, toothed on margins. Stipules divided into sharply pointed lobes. Flowers yellow, sessile, arranged in axillary clusters of 2 to 4. Fruit a short pod, beaked at apex, 2-seeded.
Habitat	:	Dried, monsoonal pools.
Fl. & Fr.	:	February to March.
Reference	:	FBI. 2:87; FUGP. 1:209; FID. 137; FNER. 151



VICIA L.

Vicia sativa L.

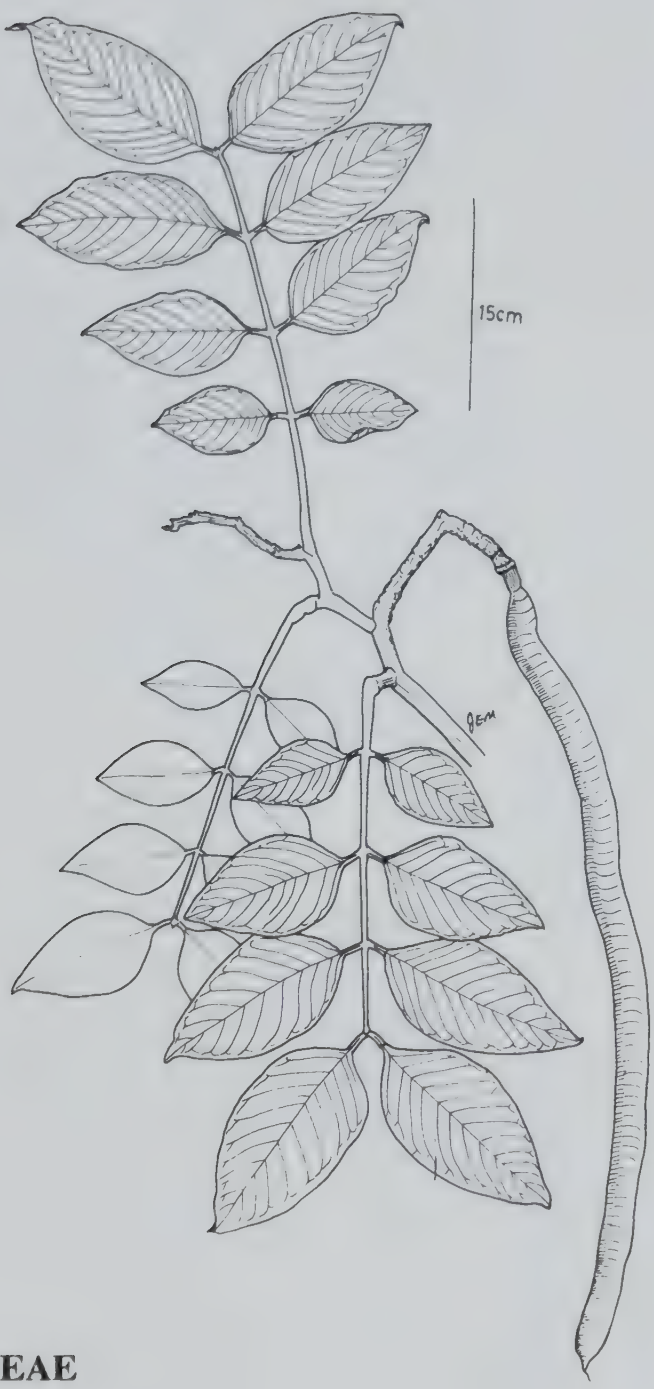
Local name	:	Akri
Characteristics	:	A climbing, annual herb with 4-angled stems. Leaves pinnately compound; leaf rachis ends in 2 or 3 tendrils. Stipules deeply lobed. Flowers pinkish, solitary in leaf axils. Fruit a flat pod, beaked at apex. Seeds 8 to 10, brown.
Habitat	:	Moist soil along roadsides and disturbed areas.
Fl. & Fr.	:	January to February.
Reference	:	FBI. 2:178; FUGP. 1:258; FD. 127; FID. 137; FNER. 152



VIGNA Savi

Vigna trilobata (L.) Verdcourt

Synonym	:	*Phaseolus trilobus* Ait.
Characteristics	:	A trailing herb, branching from the base. Young branches and leaves hairy. Leaves 3-foliolate; terminal leaflet 3-lobed, lateral ones with unequal sides. Flowers yellow, 2 to 4 arranged on a 7 to 15 cm long peduncle. Fruit a straight to slightly curved pod, 3 to 5 cm long.
Habitat	:	Commonly found in open areas in dry, sandy soil.
Fl. & Fr.	:	July to November.
Reference	:	FBI. 2:201; FUGP. 1:224; FID. 139; FNER. 141



22. CAESALPINIACEAE

CASSIA L.

Cassia fistula L.

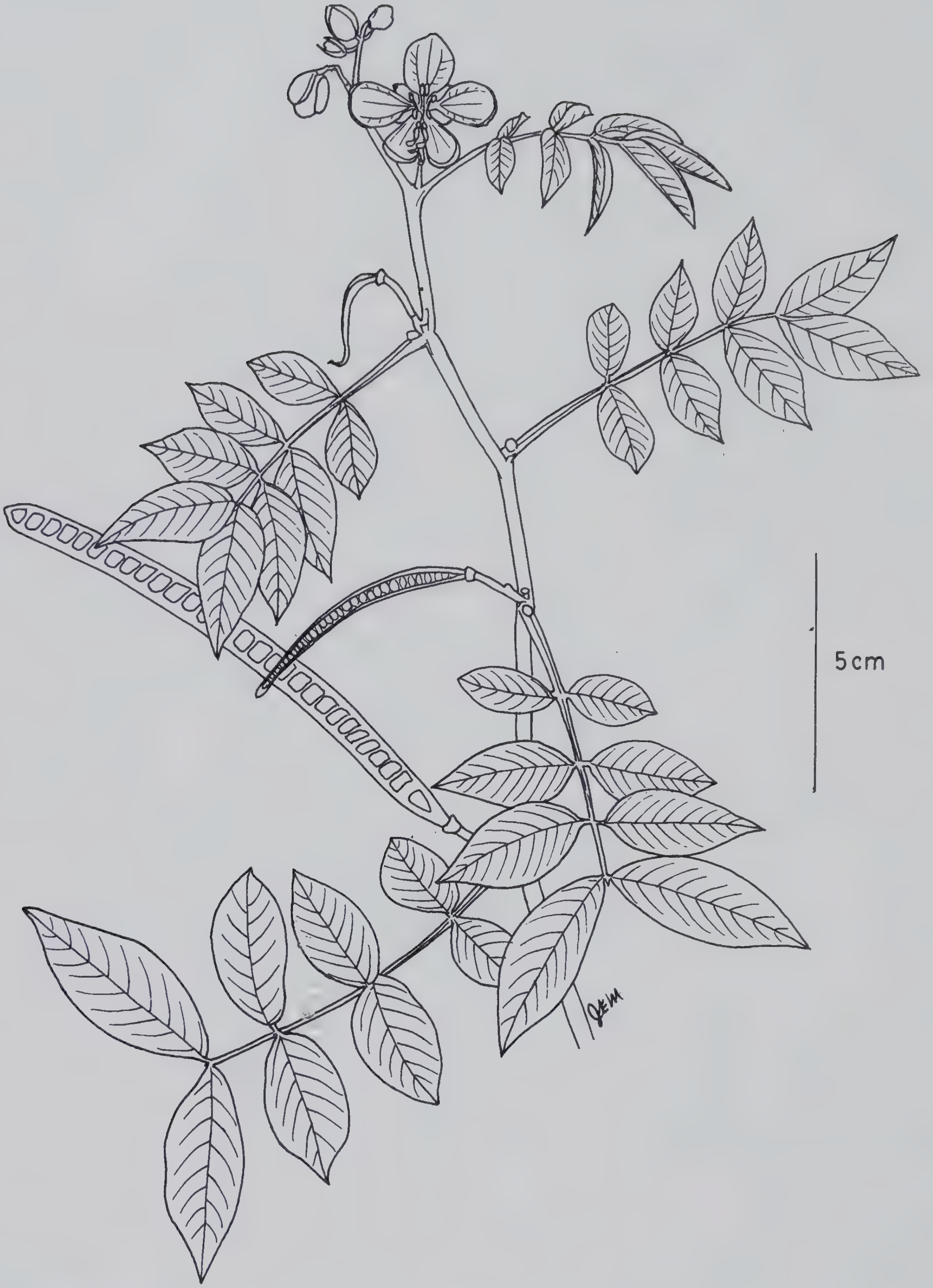
Local name : Barphali

Characteristics : A medium-sized deciduous tree with grayish bark. Leaves pinnately compound; leaflets broadly ovate, pointed at apex. Flowers bright yellow, arranged in long, drooping, axillary racemes. Fruit a hard, black, cylindrical, pendulous pod, 30 to 60 cm long; pods transversely divided into numerous 1-seeded cells inside.

Habitat : Planted along roadsides between main entrance and Sothen Walah Temple; not common.

Fl. & Fr. : April-May.

Reference : FBI. 2:261; FUGP. 1:291; FD. 142; FNER. 98



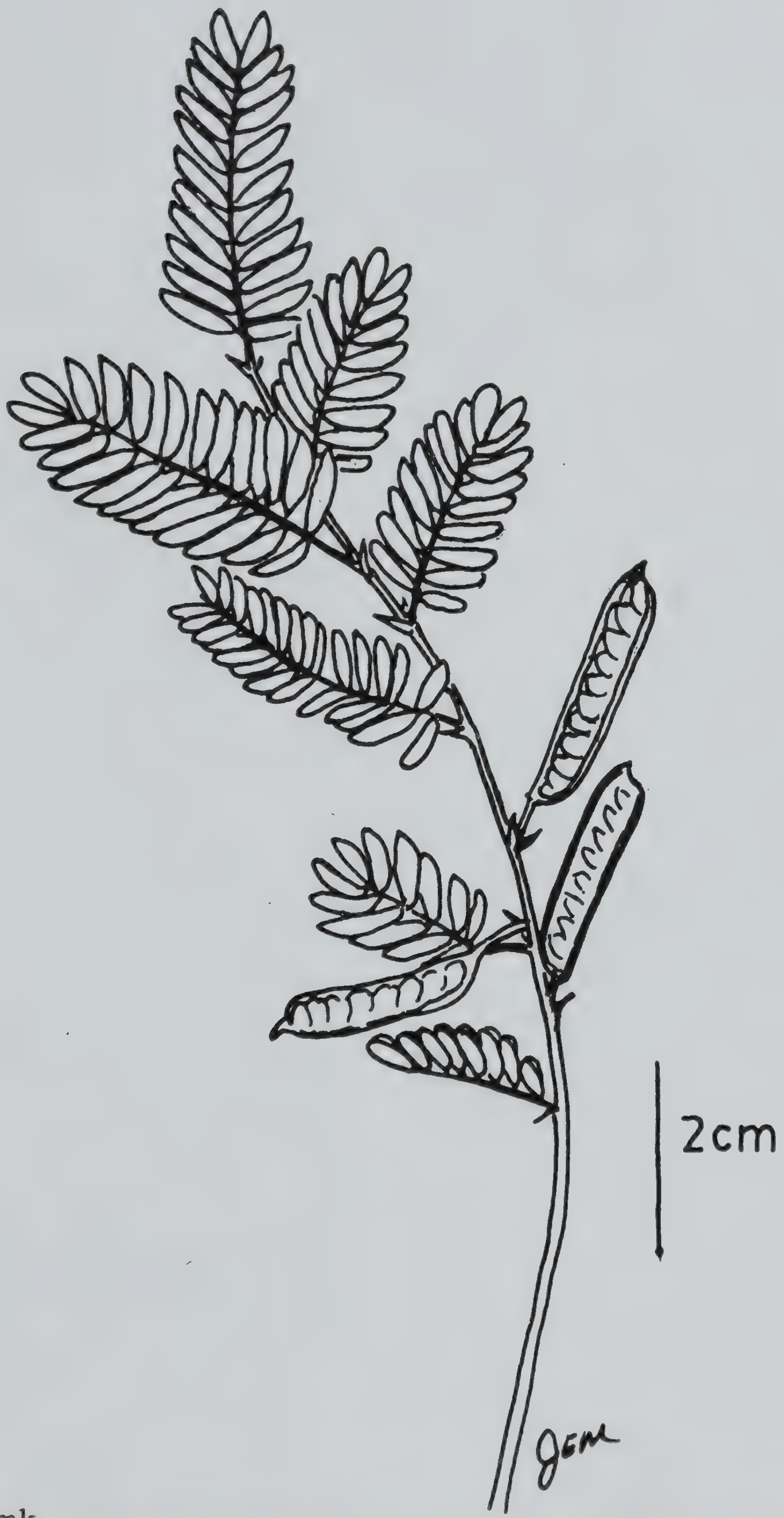
Cassia occidentalis L.

Characteristics : An annual undershrub, up to 1 m high. Leaves pinnately compound; leaflets 3 to 5, arranged in opposite pairs. Petioles with a glandular structure near the base. Flowers yellow, arranged in racemes or terminal panicles. Fruit a compressed, transversely septate pod, 10 to 13 cm long. Seeds 20 to 30.

Habitat : Common along roadsides and other open areas after monsoon.

Fl. & Fr. : August to November.

Reference : FBI. 2:262; FUGP. 1:292; FD. 141; FID. 143; FNER. 99



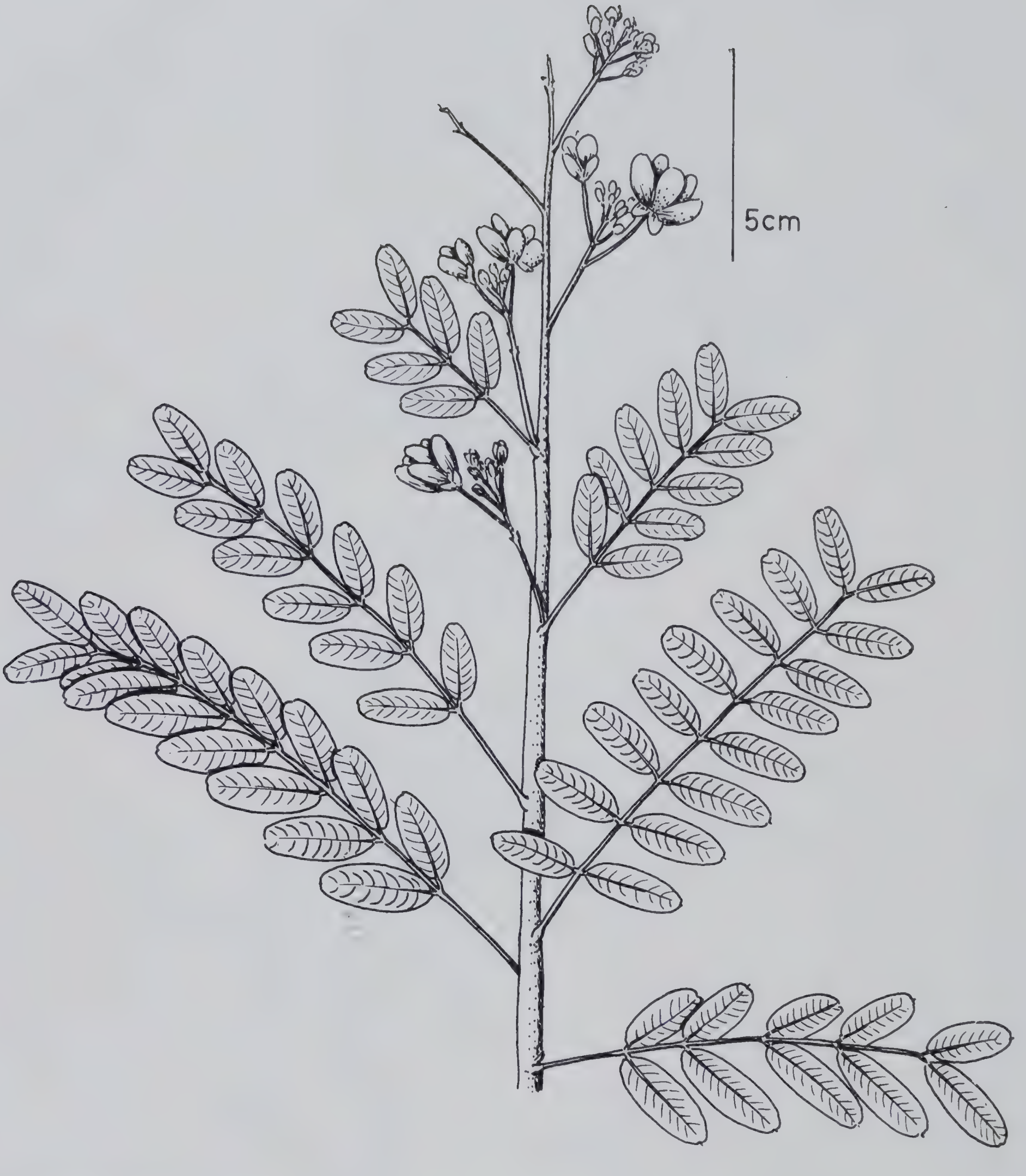
Cassia pumila Lamk.

Characteristics : A prostrate or suberect, deep rooted herb. Leaves pinnately compound; leaflets up to 22 pairs, sides unequal. Flowers yellow, 1 to 3 in leaf axils on small pedicels. Fruit a flat pod, 3 to 3.5 cm long, with oblique partitions between seeds.

Habitat : Common along roadsides and along with short grasses in moist soil.

Fl. & Fr. : August to October.

Reference : FBI. 2:266; FUGP. 1:295; FD. 141; FID. 143; FNER. 100



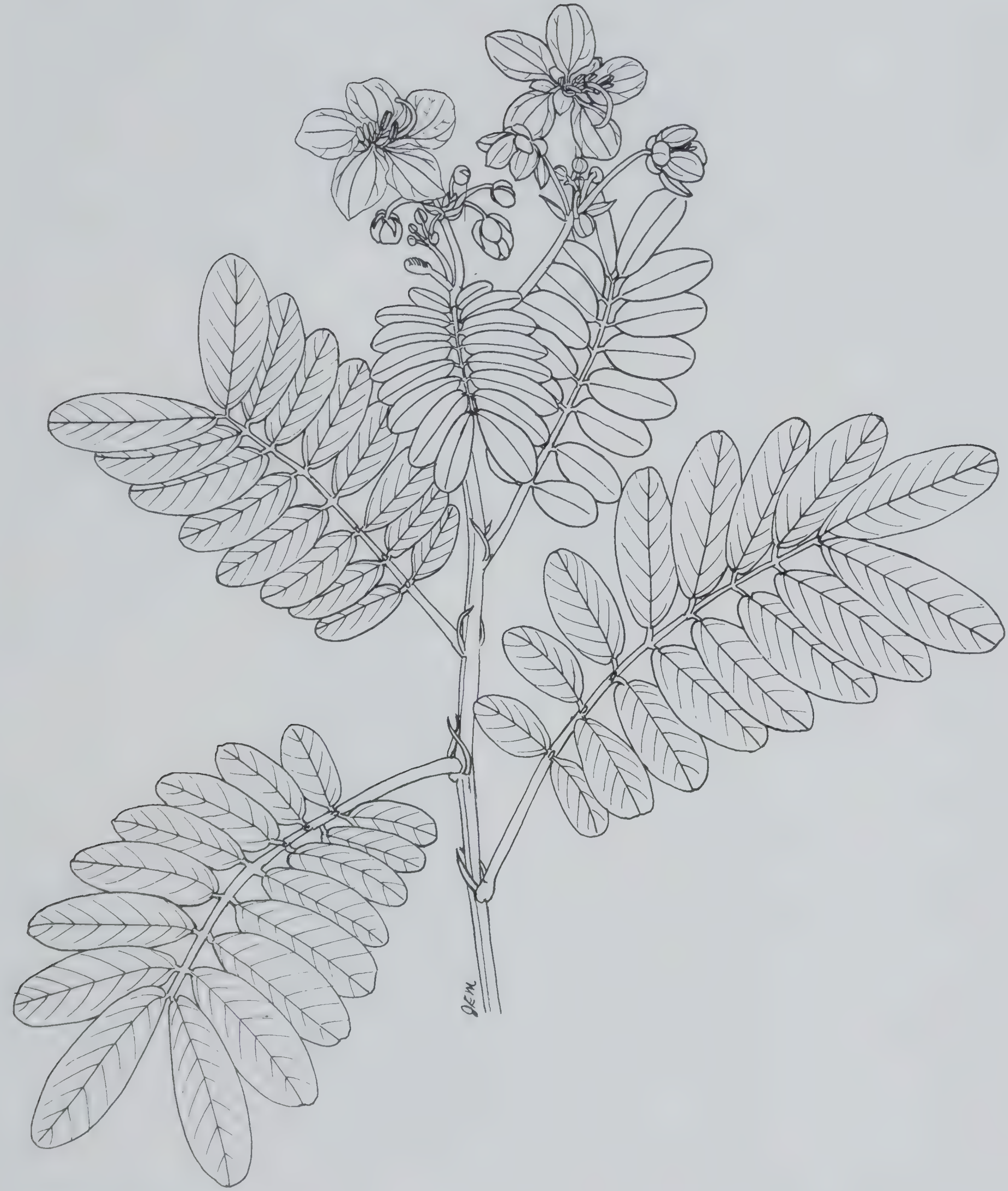
Cassia siamea Lamk.

Characteristics : A medium-sized tree with grey bark. Leaves pinnately compound; Leaflets oblong, arranged in opposite pairs. Flowers yellow, axillary or clustered at the end of branches. Fruit a long, flat pod with thick margins. Seeds many.

Habitat : Planted along roadside between the main entrance and Sothen Walah Temple; also near Shantikutir

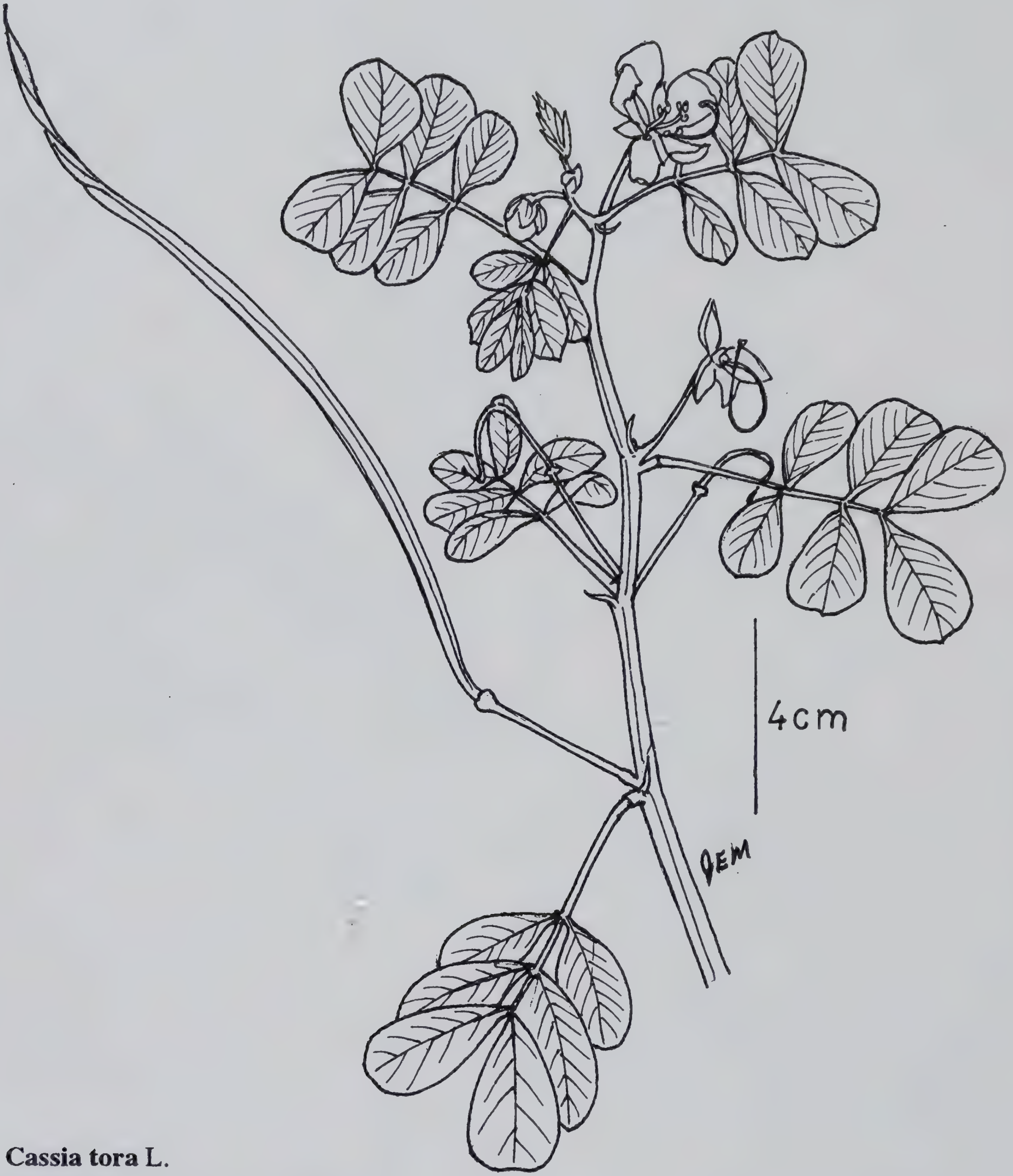
Fl. & Fr. : Almost throughout the year.

Reference : FBI. 2:264; FD. 143; FK. 1:386

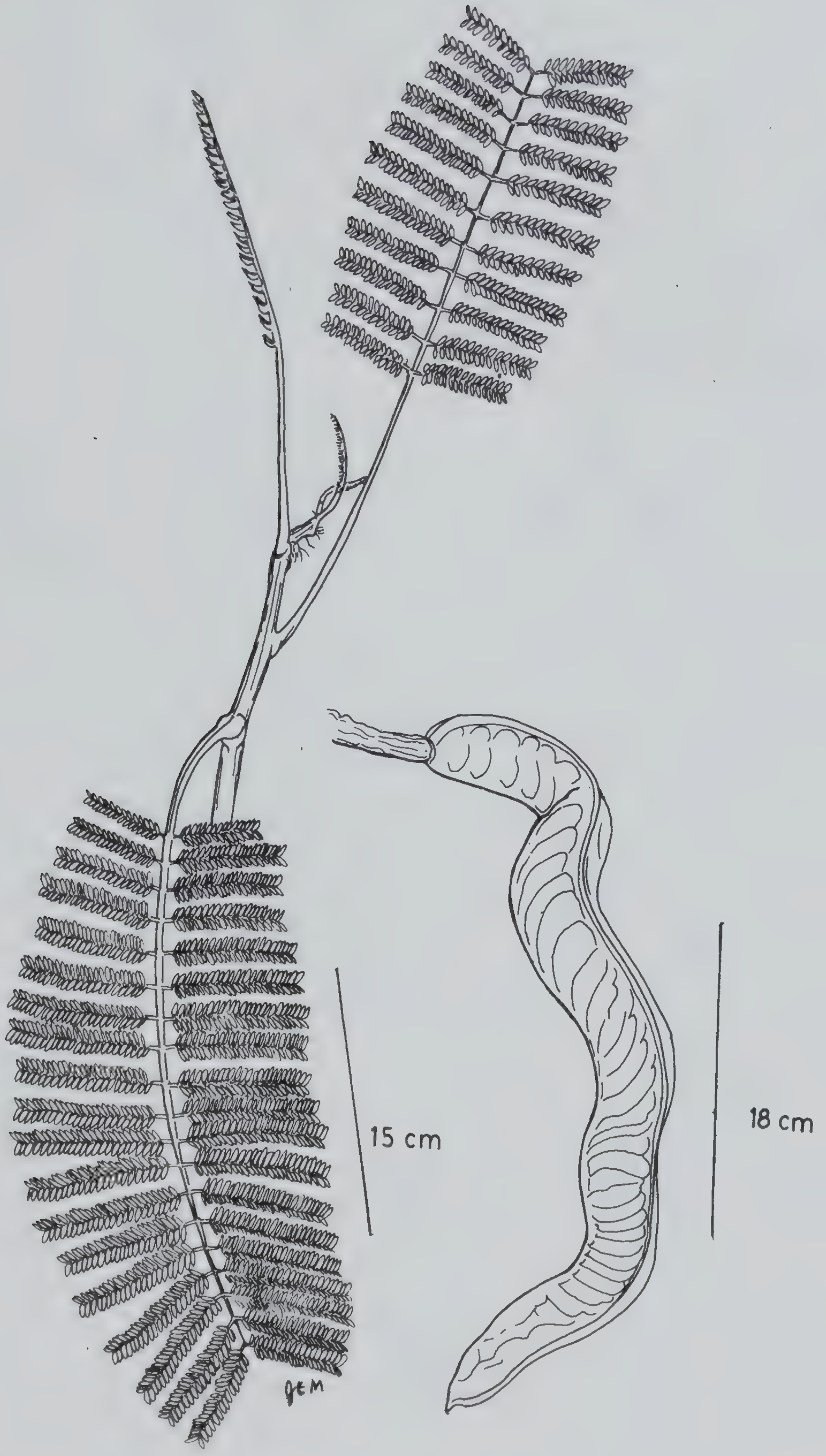


Cassia surattensis Burm. f.

Synonym	:	*C. glauca* Lamk.
Characteristics	:	A small tree with pinnately compound leaves. Leaflets 4 to 8 opposite pairs; rachis with a gland between each pair of leaflets. Flowers yellow, arranged in axillary corymbs; stamens 10. Fruit a flat, thin, septate pod with many brownish-black seeds.
Habitat	:	Planted near Sothen Walah Temple.
Fl. & Fr.	:	September to October.
Reference	:	FBI. 2:265; FUGP. 1:292; FD. 142



Cassia tora L.
Synonym : *C. obtusifolia* L.
Local name : Pamar
Characteristics : An erect annual herb, up to 1 m high. Leaves pinnately compound with 3 pairs of leaflets. Rachis with a gland located between the lowest pair of leaflets. Flowers yellow usually in axillary pairs. Fruit a pod, 20 to 25 cm long. Seeds 30 to 35.
Habitat : Commonly found along roadsides in moist, open areas.
Fl. & Fr. : August to December.
Reference : FBI. 2:263; FUGP. 1:293; FD. 141; FID. 142; FNER. 100



DELONIX Raf.

Delonix regia (Boj.) Raf.

Synonym : *Poinciana regia* Boj. ex Hook.

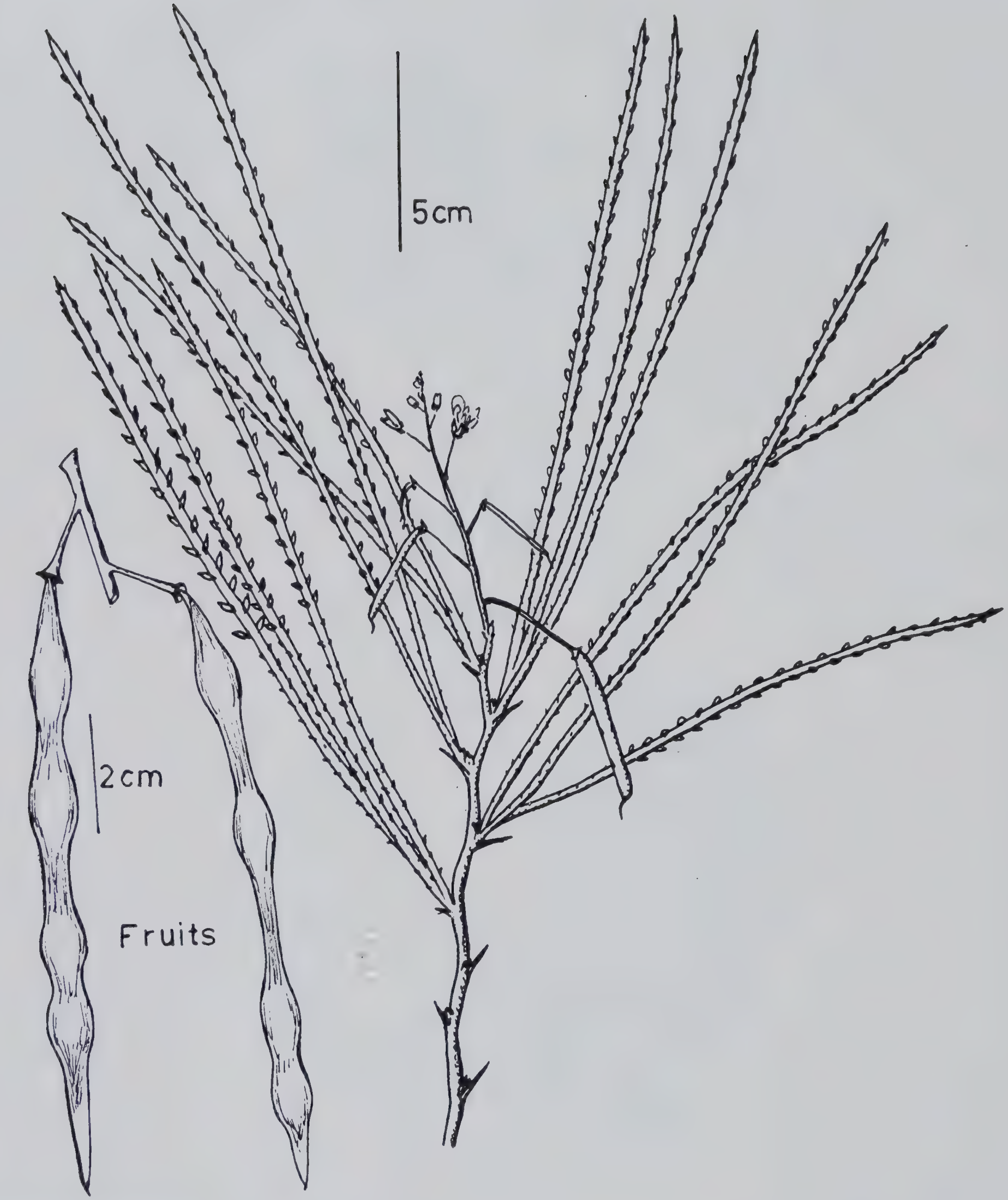
Local name : Gulmohar

Characteristics : A medium-sized tree with an umbrella-shaped crown. Leaves bipinnately compound; leaflets numerous, 1.0 to 1.5 cm long. Flowers bright red. Fruit a flat, woody pod 30 to 60 cm long, beaked at apex. Seeds many.

Habitat : Planted as an ornamental tree near Shantikutir.

Fl. : April to September; Fr. : November to April.

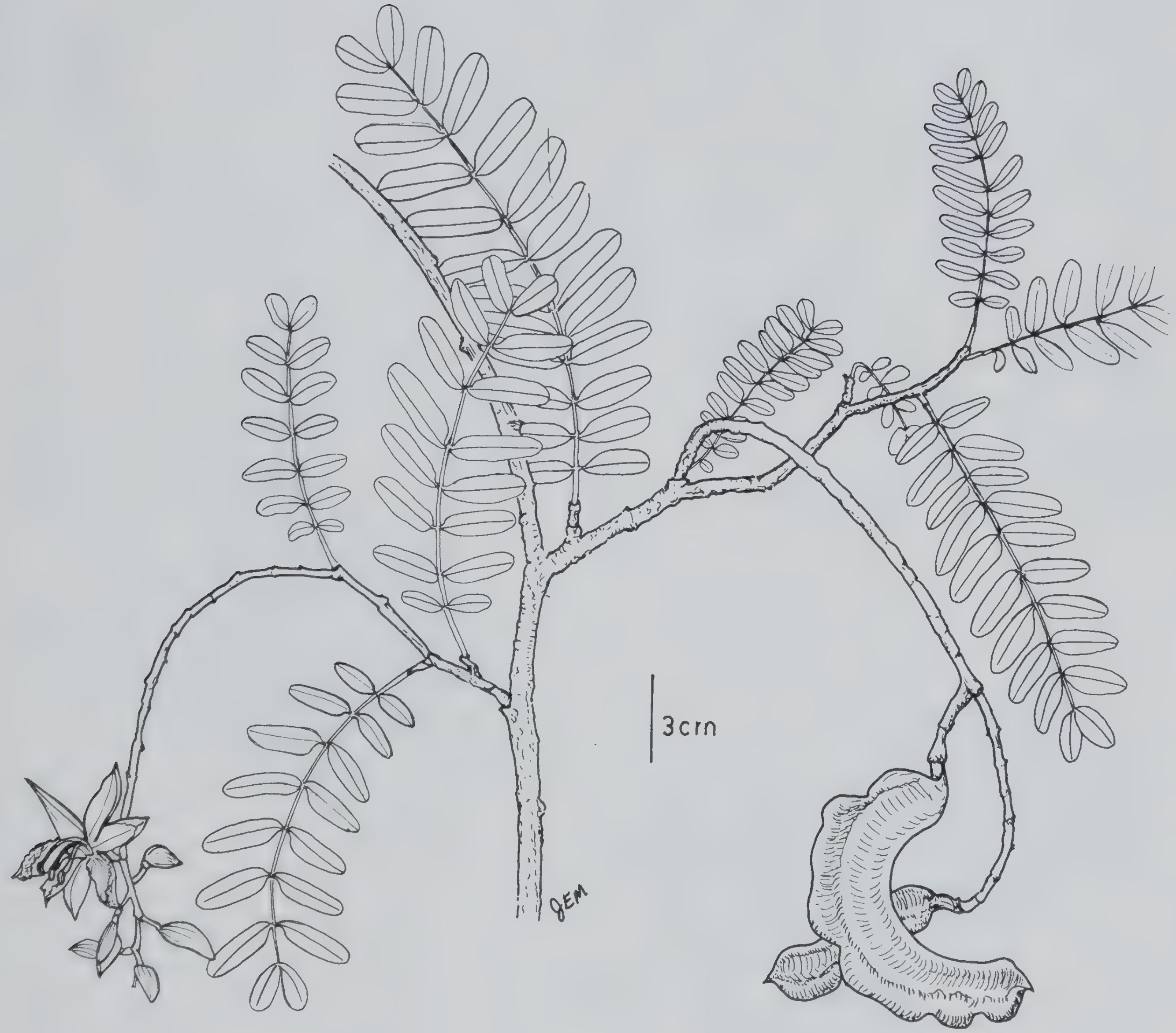
Reference : FBI. 2:260; FPB. 1:442; FD. 143



PARKINSONIA L.

Parkinsonia aculeata L.

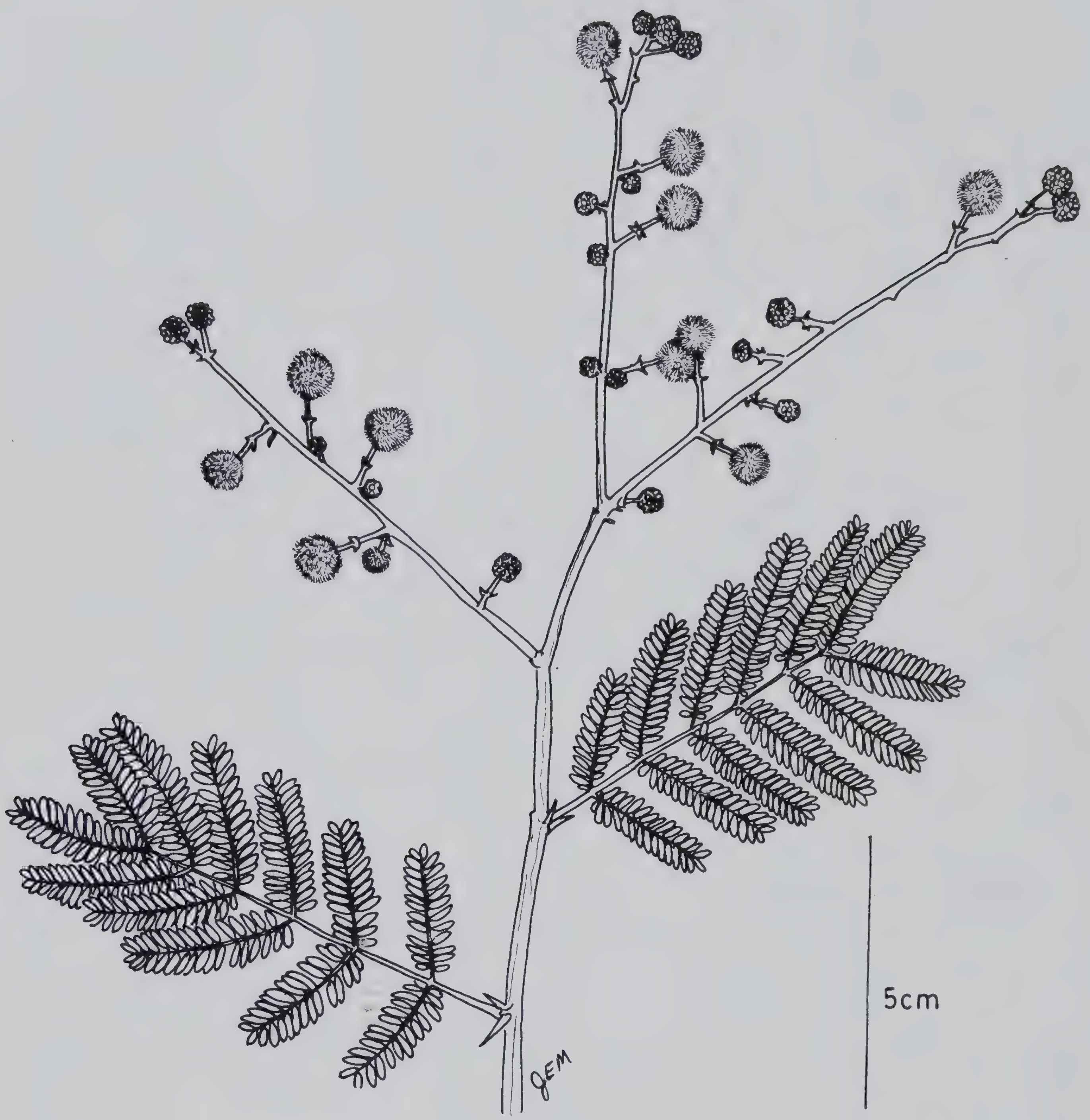
Local name : Parkamsonia
Characteristics : A small, glabrous tree with large, woody spines. Leaves bipinnately compound with small leaflets on a flat rachis. Flowers yellow, arranged in lax, axillary racemes. Pods constricted laterally between seeds.
Habitat : Planted near Shantikutir.
Fl. & Fr. : December to June.
Reference : FBI. 2:260; FUGP. 1:303; FD. 138; FID. 144; FNER. 101



TAMARINDUS L.

Tamarindus indica L.

Local name : Imli
Characteristics : A medium-sized or large tree. Leaves pinnately compound; leaflets 20 to 30, in opposite pairs. Flowers light yellow with reddish stripes, arranged in axillary racemes. Fruit a compressed pod, beaked at apex, pulpy inside. Seeds dark brown.
Habitat : Along roadside between Chitalvan and Aghapur Chowki; not common.
Fl. & Fr. : July to August.
Reference : FBI. 2:273; FUGP. 1:301; FD. 139; FID. 145

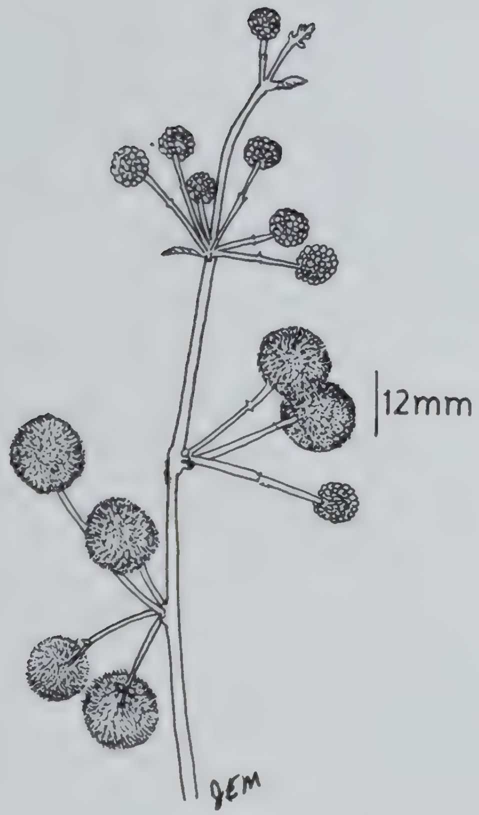


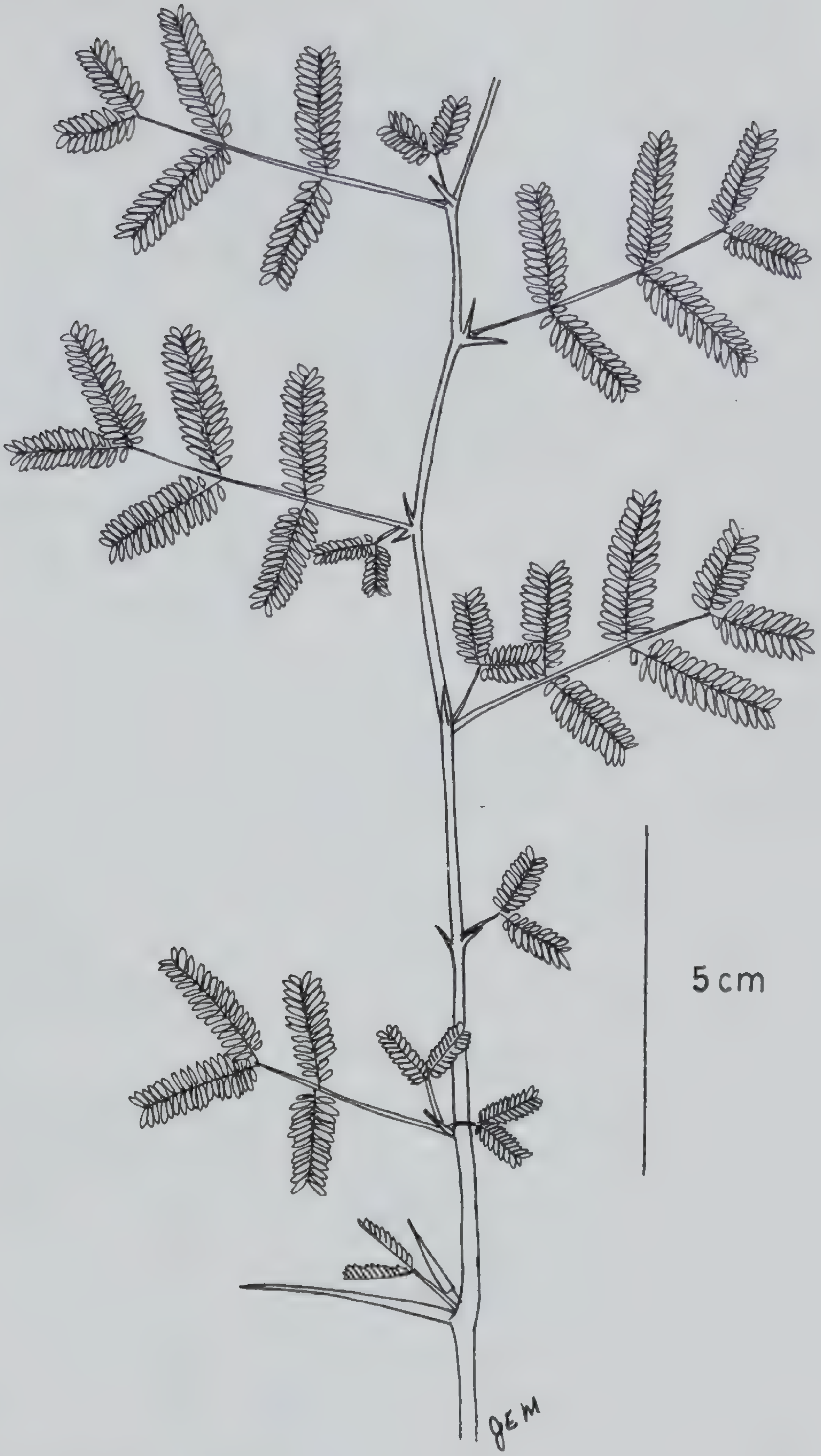
23. MIMOSACEAE

ACACIA Mill.

Acacia leucophloea (Roxb.) Willd.

Local name	:	Raemga
Characteristics	:	A medium-sized tree with spines and greyish bark. Leaves bipinnately compound with numerous small leaflets. Nodes with a pair of stout, pointed spines. Flowers cream-coloured; heads arranged in terminal panicles. Fruit a long, flat pod covered with small, brown hairs.
Habitat	:	Common along roadsides and open areas.
Fl. & Fr.	:	November to March.
Reference	:	FBI. 2:294; FUGP. 1:315; FD. 149; FID. 146; FNER. 104





Acacia nilotica (L.) Del. sub sp. **indica** (Benth.) Brenan

Synonym : *A. arabica* Willd.

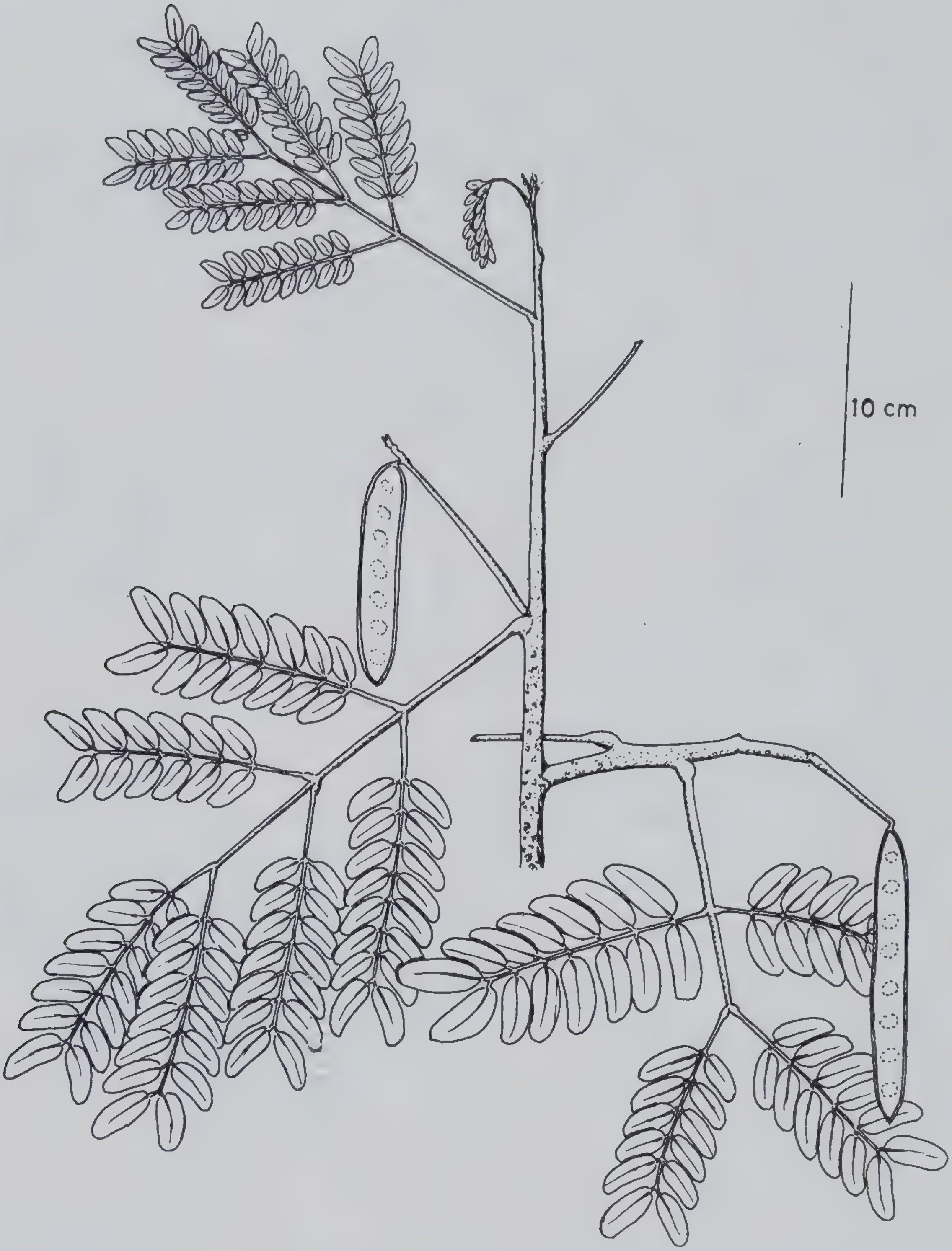
Local name : Babul, Desi babul

Characteristics : An armed medium-sized tree with brown to blackish, fissured bark. Leaves bipinnately compound with numerous small leaflets. Spines long, sharp, usually white or sometimes absent in old trees. Flower heads bright yellow, arranged in axillary panicles. Fruit a grayish pod, 7 to 15 cm long, constricted between seeds; apex long, pointed.

Habitat : Common on mounds in aquatic area and throughout thé uplands.

Fl. & Fr. : August to June.

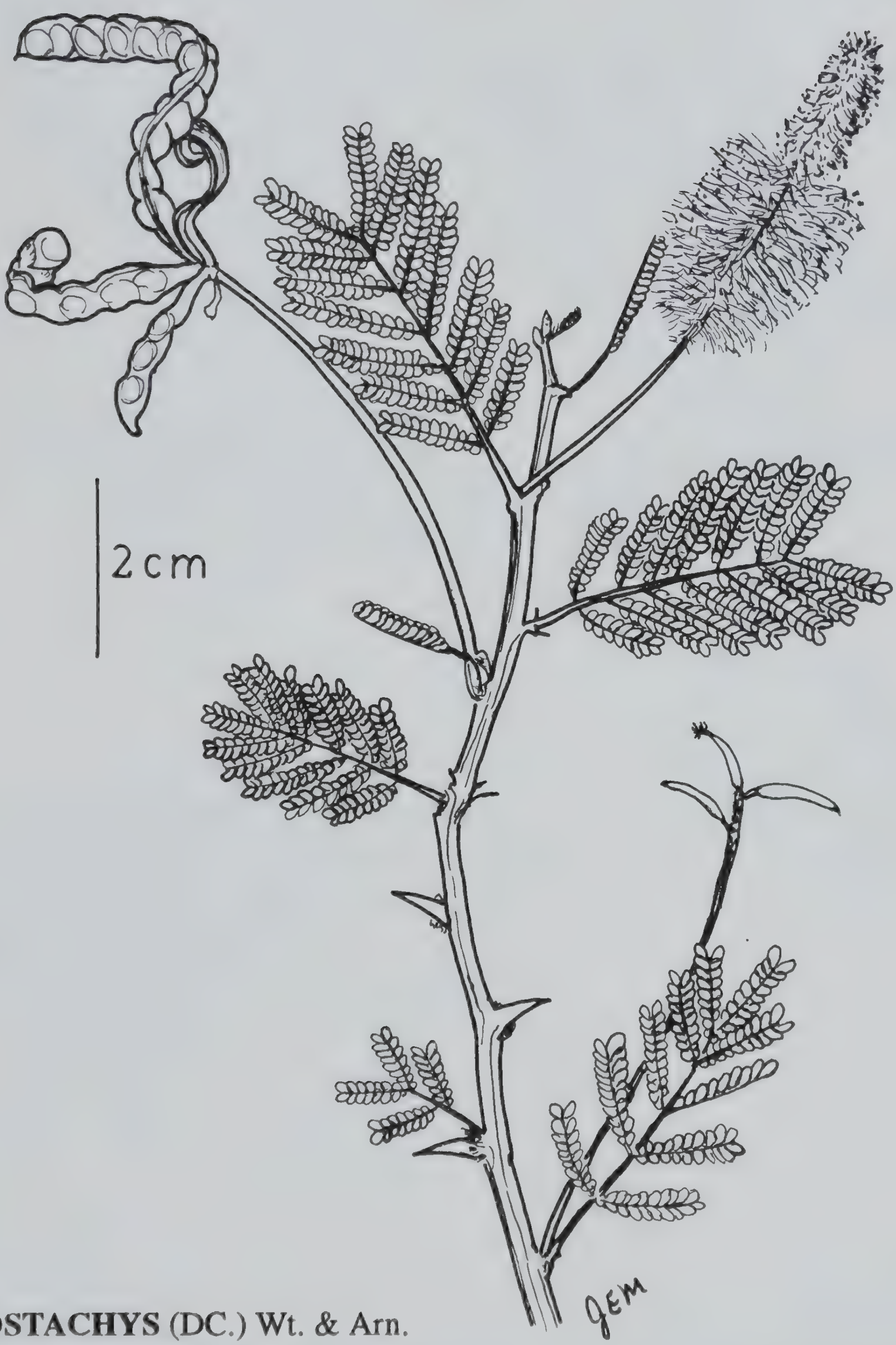
Reference : FBI. 2:293; FUGP. 1:314; FD. 148; FID. 147; FNER. 105



ALBIZIA Durazz.

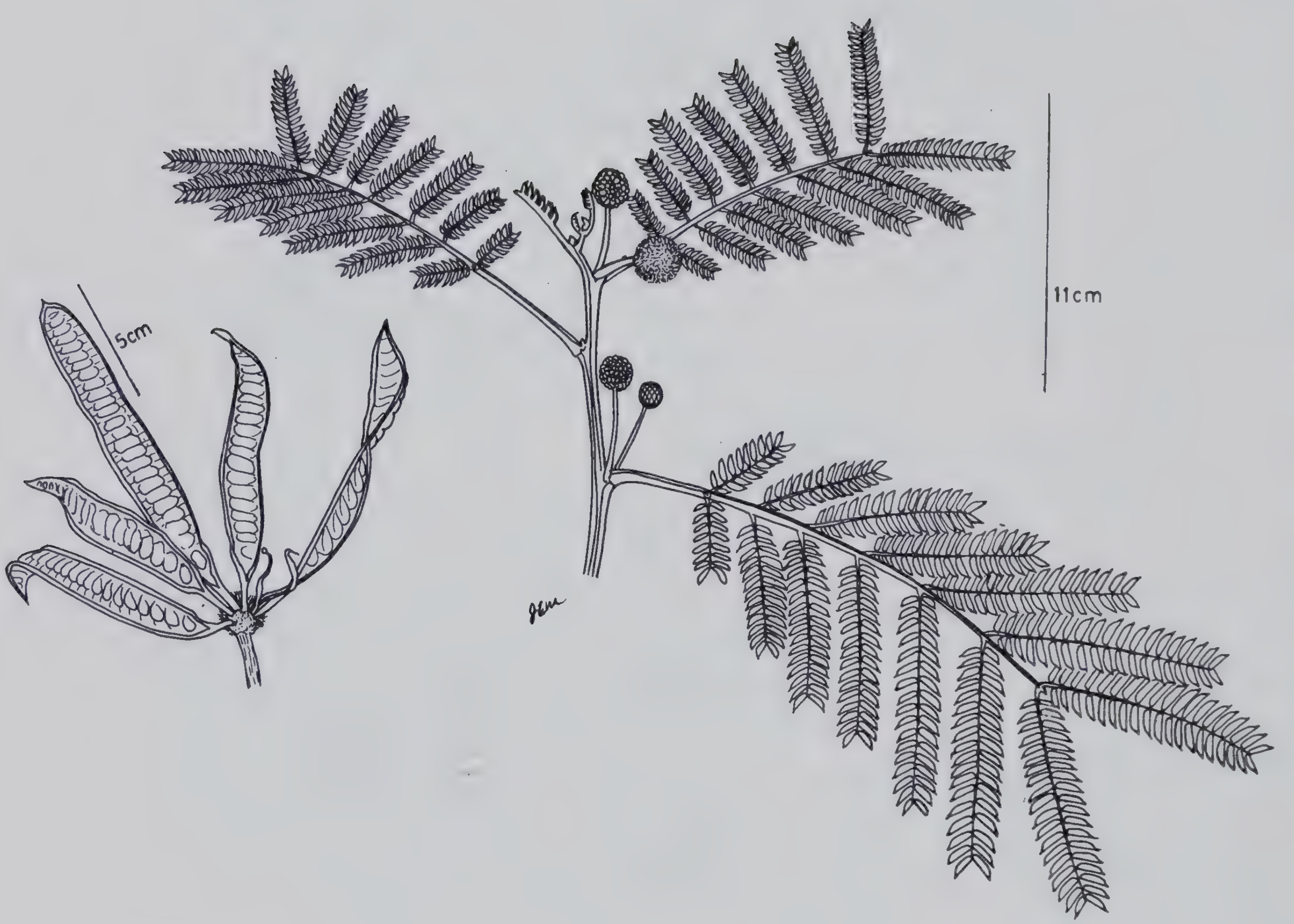
Albizia lebbeck (L.) Benth.

Local name	:	Sers
Characteristics	:	A tall or medium-sized, unarmed, deciduous tree. Leaves bipinnately compound; leaflets numerous, arranged in opposite pairs. Petiole with a gland at the base. Flowers white, fragrant, solitary or clustered in upper leaf axils. Fruit a long, flat, straw-coloured pod, 10 to 25 cm long. Seeds 8 to 10.
Habitat	:	Along roadsides; not common.
Fl. & Fr.	:	August to November.
Reference	:	FBI. 2:298; FUGP. 1:320; FD. 151; FID. 148



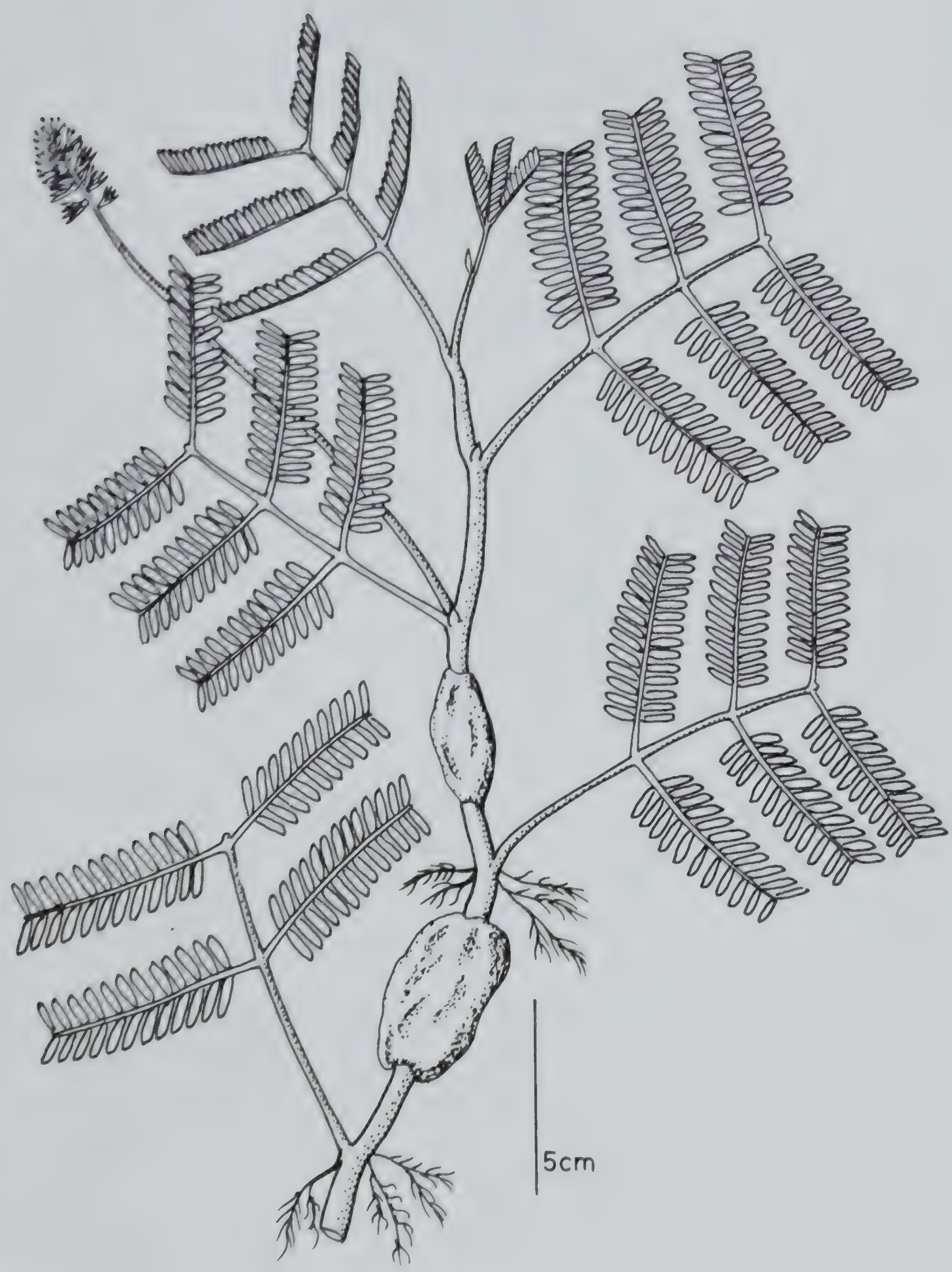
DICHROSTACHYS (DC.) Wt. & Arn.
Dichrostachys cinerea (L.) Wt. & Arn.

Characteristics	:	A many-branched, thorny shrub or small tree. Branchlets terminate in spines. Leaves bipinnately compound; leaflets numerous, linear, arranged in opposite pairs. Flowers in axillary, drooping spikes; upper ones yellow, bisexual; lower rose, neuter. Fruit a flat, twisted pod, 5 to 7 cm long.
Habitat	:	Common in dry, sandy areas.
Fl. & Fr.	:	July to August.
Reference	:	FBI. 2:288; FUGP. 1:310; FD. 146; FID. 149; FNER. 106



LEUCAENA Benth.
Leucaena latisiliqua (L.) Gillis

Synonyms : *L. leucocephala* (Lamk.) de Wit.
L. glauca Benth.
Characteristics : A small, unarmed tree. Leaves bipinnately compound with numerous linear leaflets. Flowers white, arranged in axillary heads near the apex of branches. Fruit a flat, thin pod, 12 to 15 cm long, tapering to the base. Seeds many.
Habitat : Along roadside between the barrier and Sapanmori; rare.
Fl. & Fr. : July to August.
Reference : FBI. 2:290; FUGP. 1:310; FD. 146; FID. 149



NEPTUNIA Lour.

Neptunia oleracea Lour.

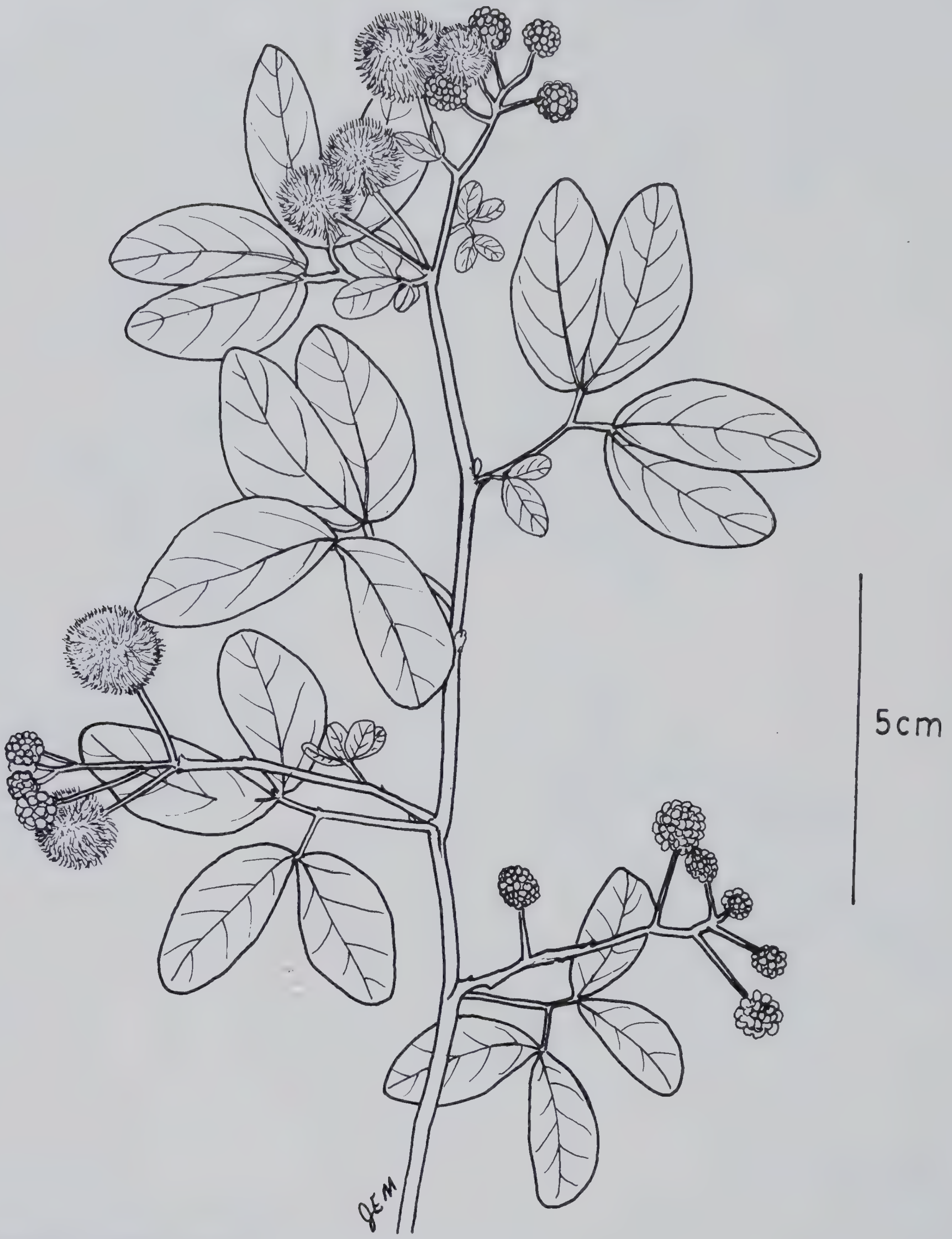
Local name : Chui-mui

Characteristics : A floating aquatic herb with zig-zag branches, rooting at the nodes and with spongy floats. Leaves bipinnately compound; leaflets 10 to 15 pairs, oblong, sensitive to touch. Flowers yellow, arranged in oblong heads on long, axillary peduncles; upper flowers bisexual, lower ones neuter.

Habitat : Sparsely found in aquatic area in association with *Ipomoea aquatica* and *Paspalum distichum.*

Fl. & Fr. : November to March.

Reference : FBI. 2:285; FUGP. 1:306; FPB. 1:463



PITHECELLOBIUM Mart.

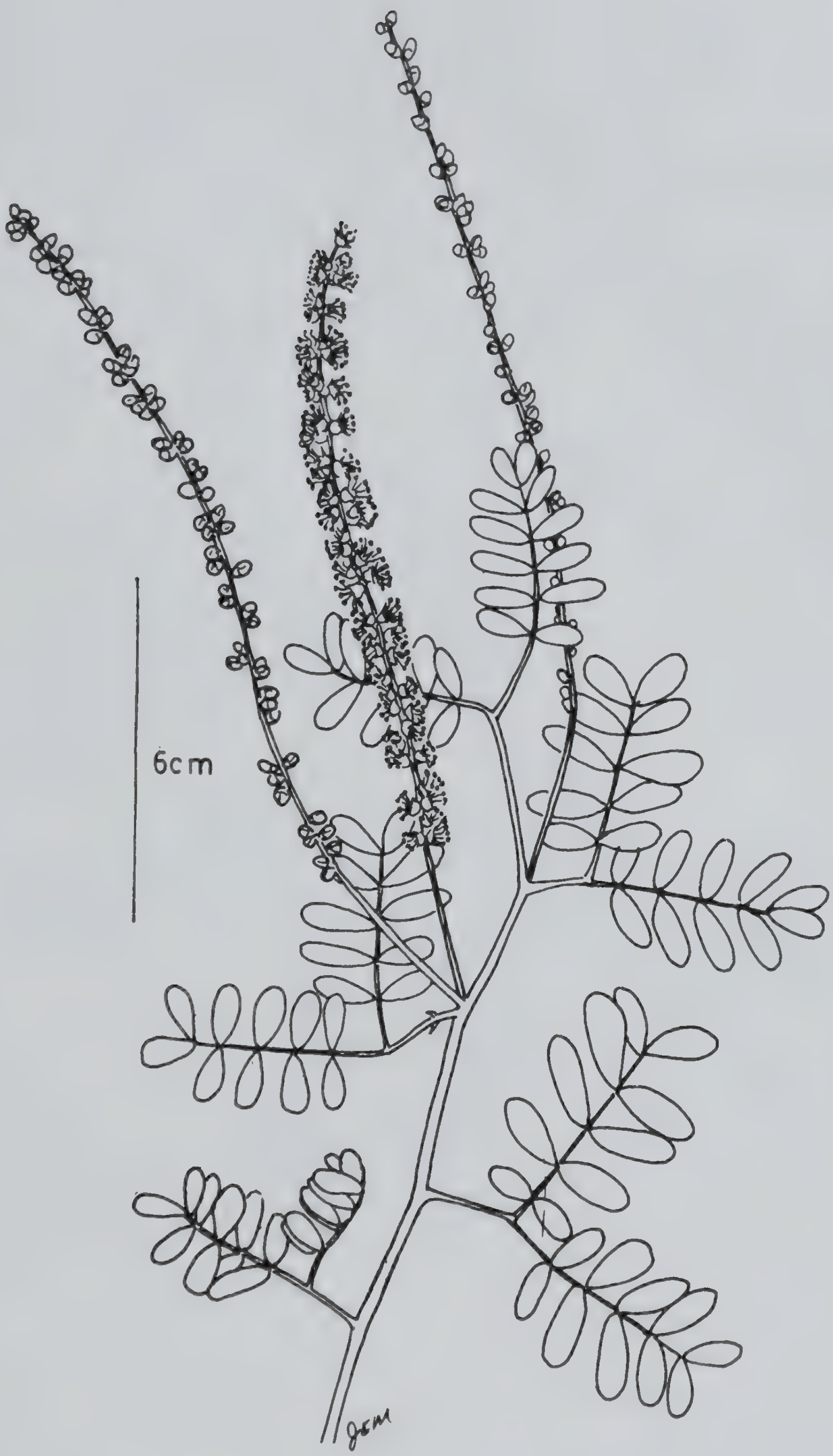
Pithecellobium dulce (Roxb.) Benth.

Characteristics : An armed shrub or middle-sized tree with hairs on young stems. Spines, 1 to 1.2 cm long. Leaflets in 2 pairs, obovate or elliptic oblong. Flower heads creamish, in terminal panicles. Fruit a spirally twisted, hairy, reddish-brown pod. Seeds embedded in pulpy aril.

Habitat : Found in sandy loam near Aghapur Chowki; rare.

Fl. & Fr. : April to May.

Reference : FBI. 2:302; FUGP. 1:322; FD. 152; FID. 151



PROSOPIS L.

Prosopis cineraria (L.) Druce

Synonym : *P. spicigera* L.

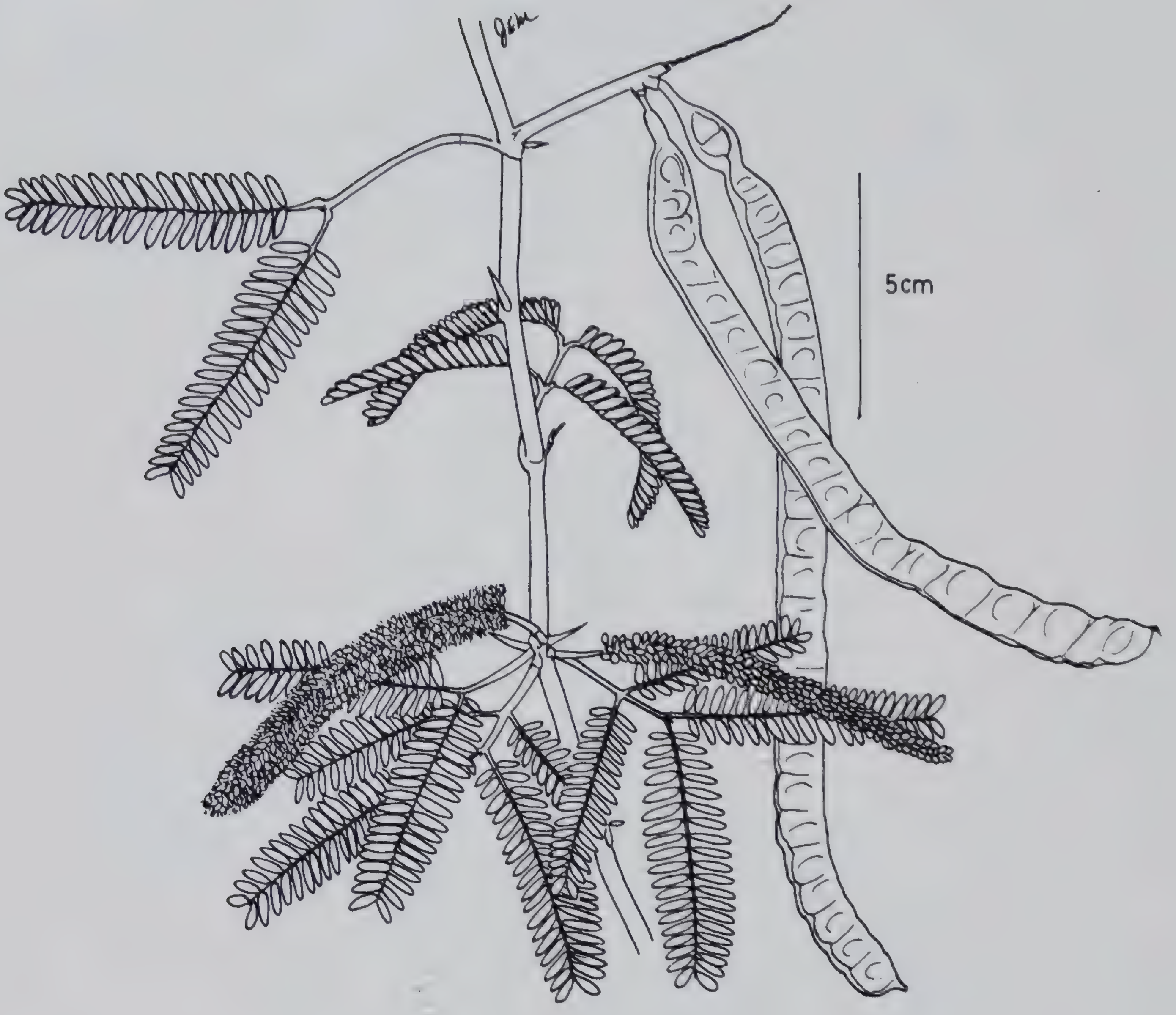
Local name : Choukra

Characteristics : A medium-sized tree with deeply fissured bark and prickly branches. Leaves bipinnately compound; leaflets in opposite pairs. Flowers yellow, arranged in slender spikes. Fruit an irregularly swollen cylindrical pod, 10 to 20 cm long. Seeds 10 to 15.

Habitat : Common throughout drier parts of the park.

Fl. & Fr. : April to June.

Reference : FBI. 2:288; FUGP. 1:309; FD. 145; FID. 152; FNER. 107



Prosopis juliflora (Sw.) DC.

Local name : Dikhni babul

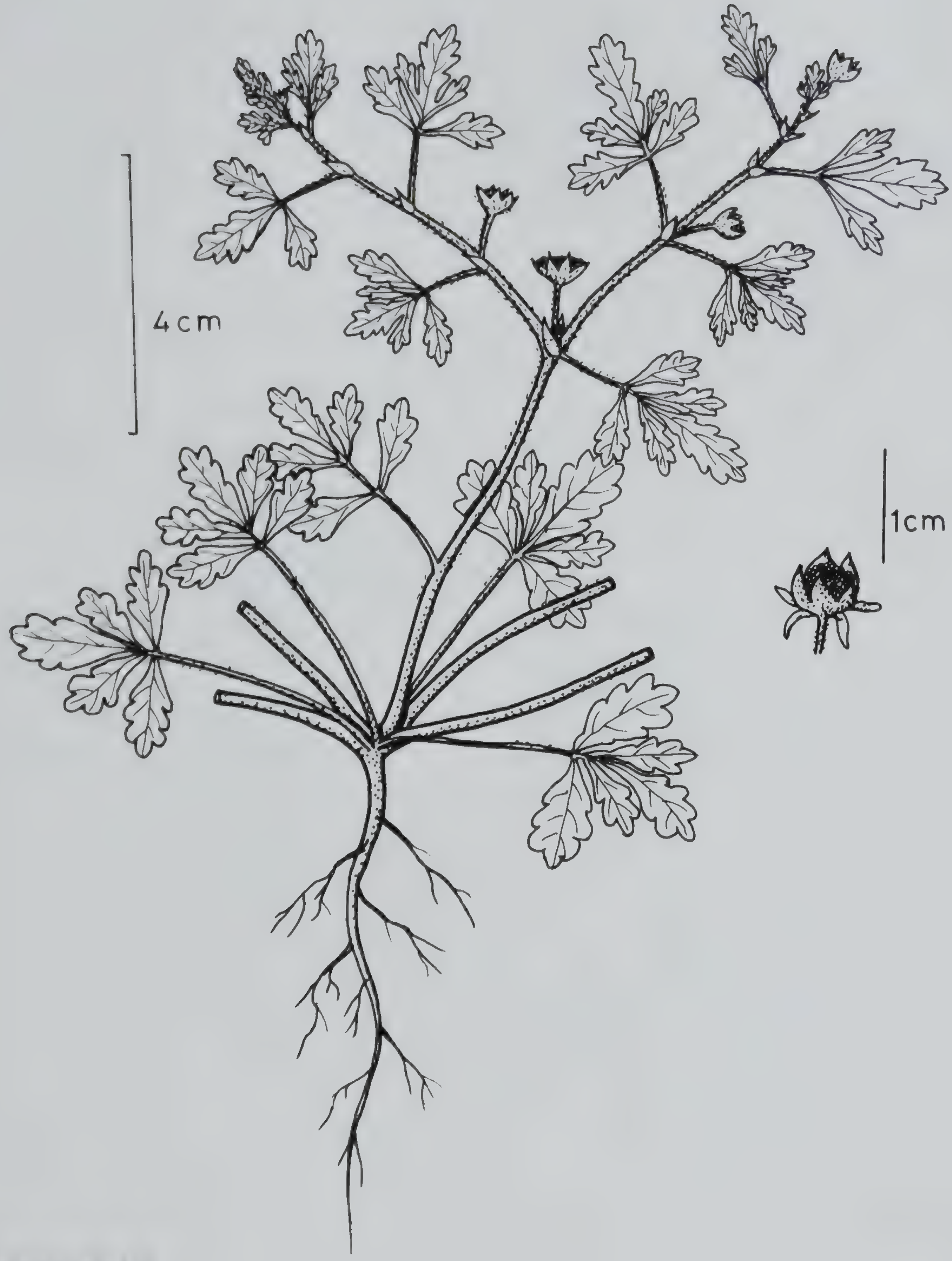
Characteristics : A small armed tree. Leaves bipinnately compound with numerous linear leaflets. Spines stout, in pairs. Flowers light yellow or greenish, arranged in axillary spikes. Fruit a compressed pod, 10 to 15 cm long, yellowish when mature. Seeds 20 to 25.

Habitat : Abundant in dry, sandy soil.

Fl. & Fr. : August to February.

Reference : FUGP. 1:309; FD. 145

Note : Some authors treat *Prosopis juliflora* (Sw.) DC. as a synonym of *Prosopis chilensis* (Molina) Stuntz. But these seem to be different species [see Bennet's (1987) nomenclatural changes]. Hence we treat *P. juliflora* (Sw.) DC. as the correct name of this species.



24. ROSACEAE

POTENTILLA L.

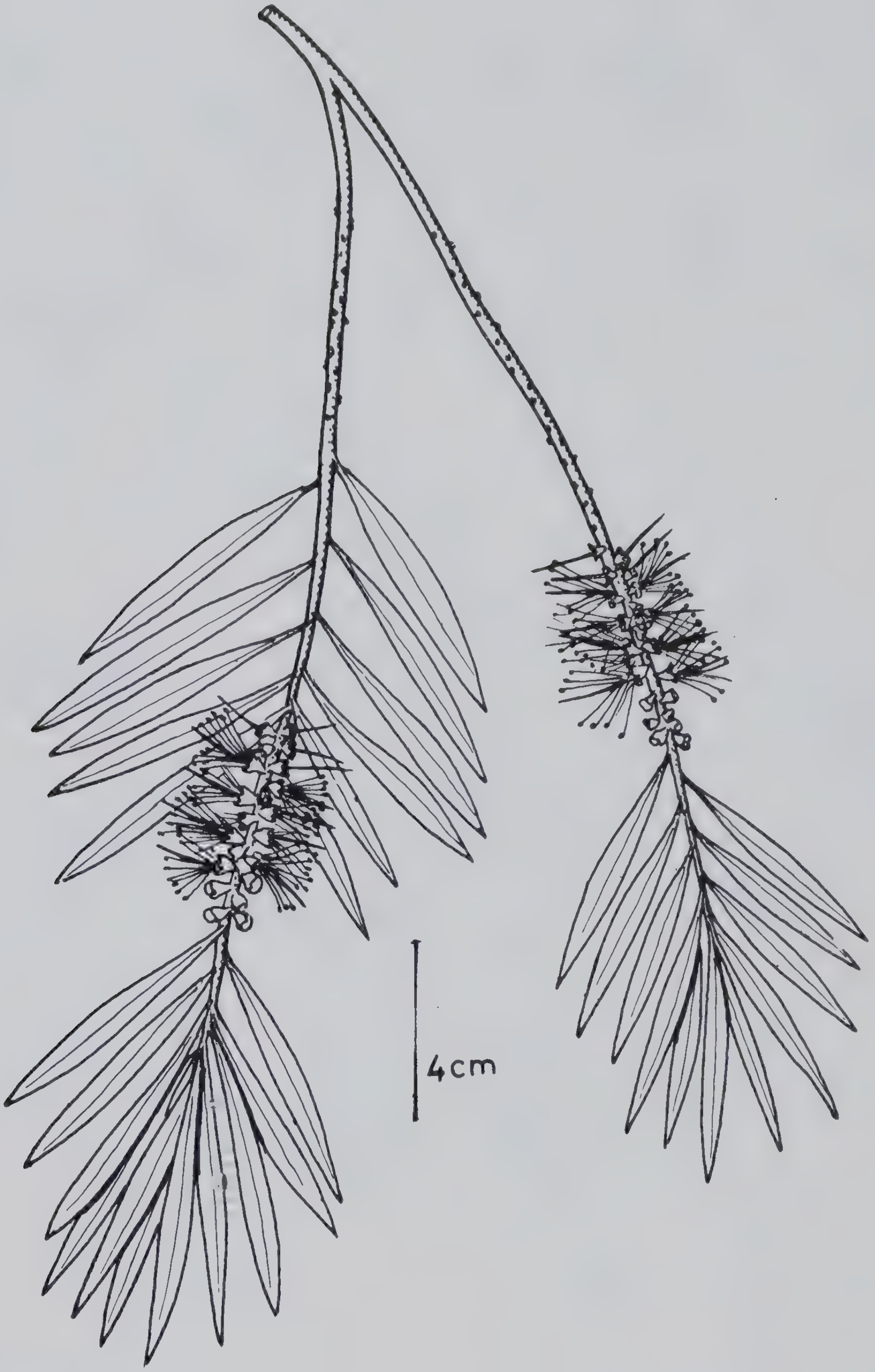
Potentilla supina L.

Characteristics : A prostrate, hairy herb, branching from the base. Branches spreading in all directions. Leaves 3 to 5-foliolate; leaflets lobulate. Flowers yellow, solitary in leaf axils; pedicels hairy. Fruit a group of small achenes arranged on a globose receptacle.

Habitat : Moist, open areas and dried monsoonal pools.

Fl. & Fr. : January to May.

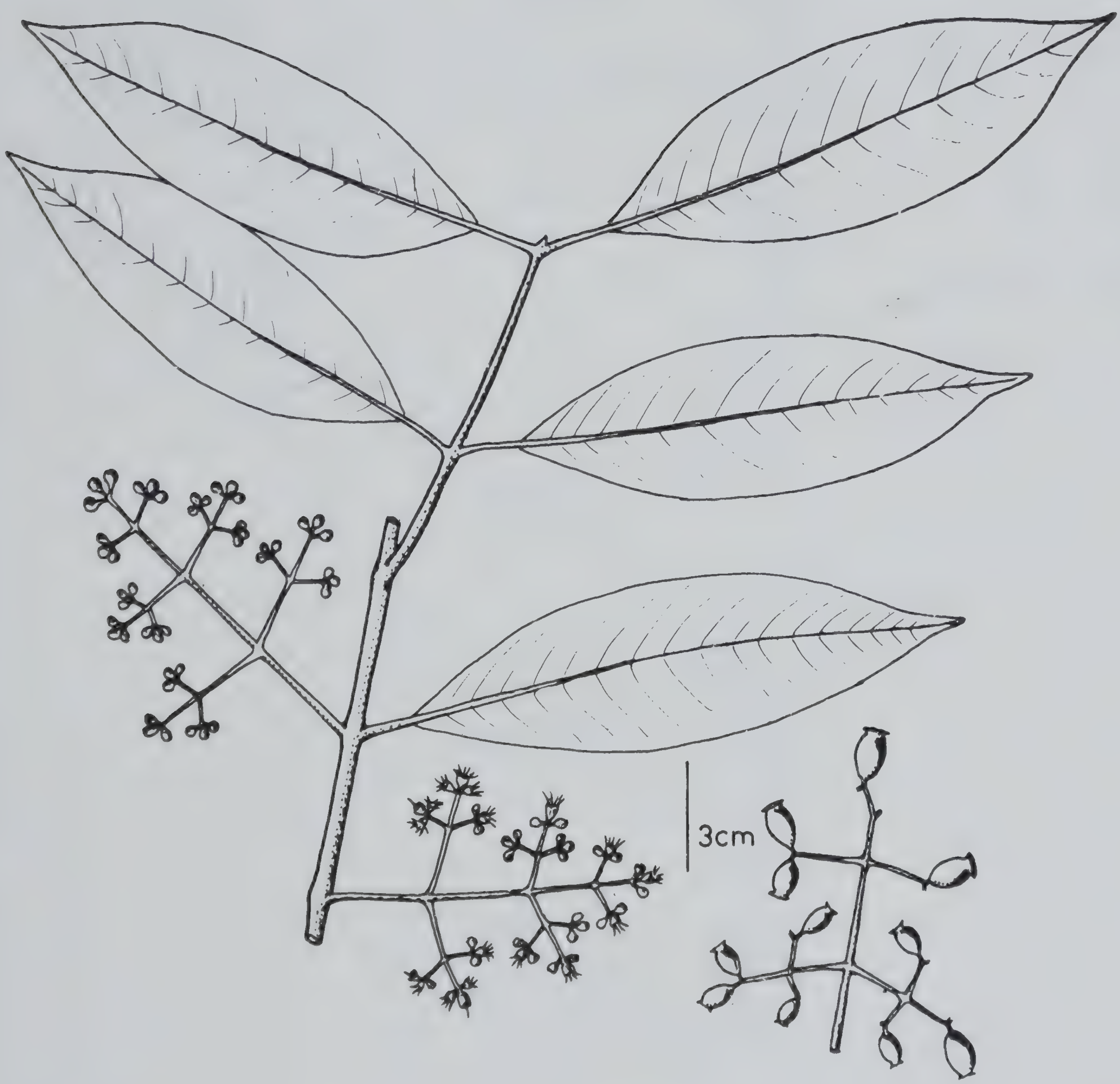
Reference : FBI. 2:359; FUGP. 1:327; FD. 155; FID. 154; FNER. 154



25. MYRTACEAE

CALLISTEMON R. Br.
Callistemon lanceolatus DC.

Local name	:	Bothal burus
Characteristics	:	A small tree with drooping branches and fissured bark. Young branches with small, soft hairs. Leaves alternate, linear-lanceolate, 4 to 7 cm long. Flowers red, arranged in terminal, leafy spikes which resemble a bottle-brush. Fruit a capsule.
Habitat	:	Planted in moist sandy soil near Keoladeo Temple.
Fl. & Fr.	:	October to February.
Reference	:	FD. 158; FG. 133



SYZYGIUM Gaertn.

Syzygium cumini (L.) Skeels

Synonym : *Eugenia jambolana* Lamk.

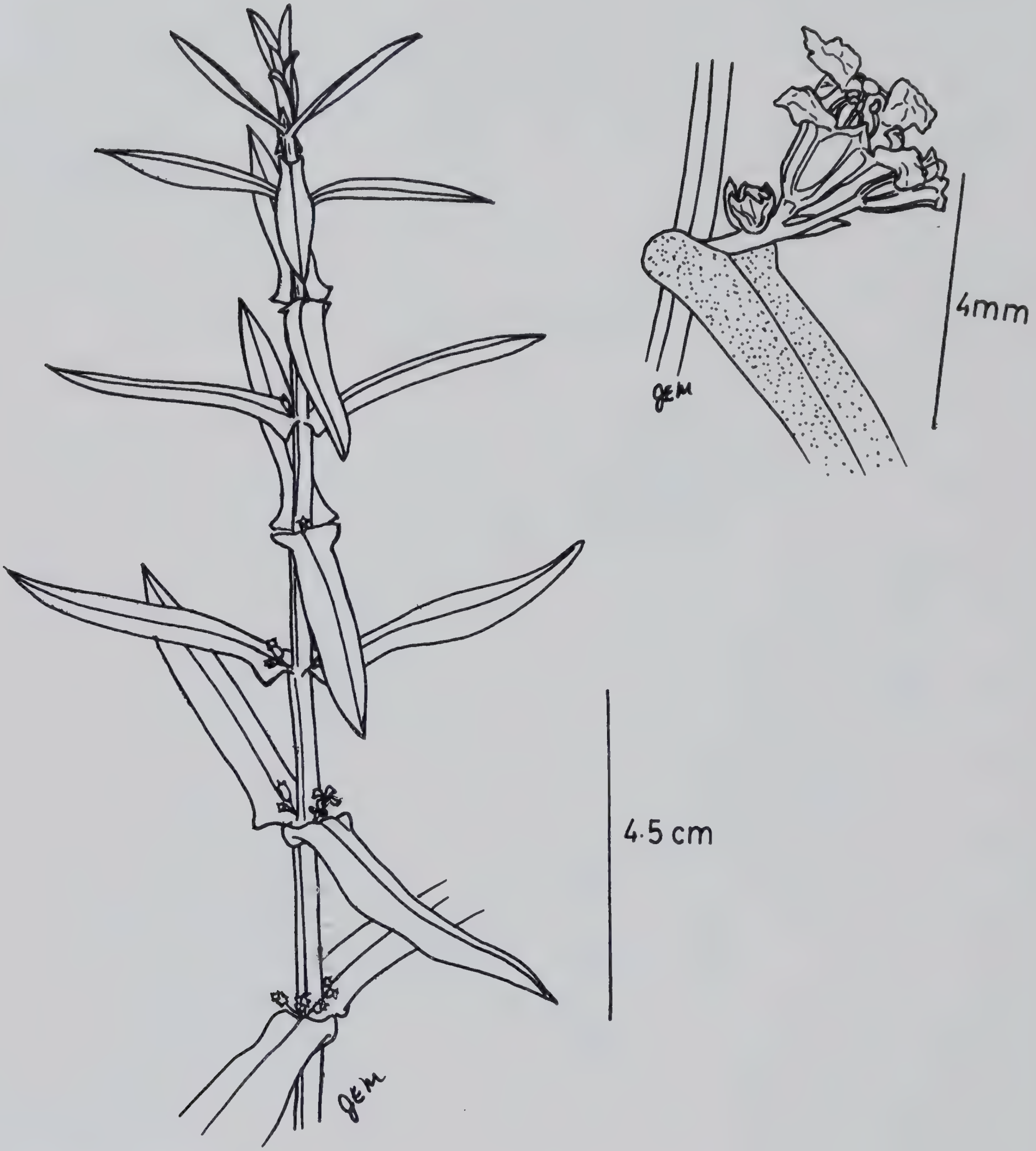
Local name : Jamun

Characteristics : A medium to large sized tree with smooth, grey bark. Leaves opposite, 7 to 15 cm long. Flowers white to cream-coloured, in lateral panicles from the scars of fallen leaves. Fruit a one-seeded berry, black or dark purple when ripe.

Habitat : Common along roadsides and scattered throughout the uplands.

Fl. : May to June; Fr. : June to August.

Reference : FBI. 2:499; FUGP. 1:342; FD. 160; FID. 160



26. LYTHRACEAE

AMMANNIA L.

Ammannia auriculata Willd.

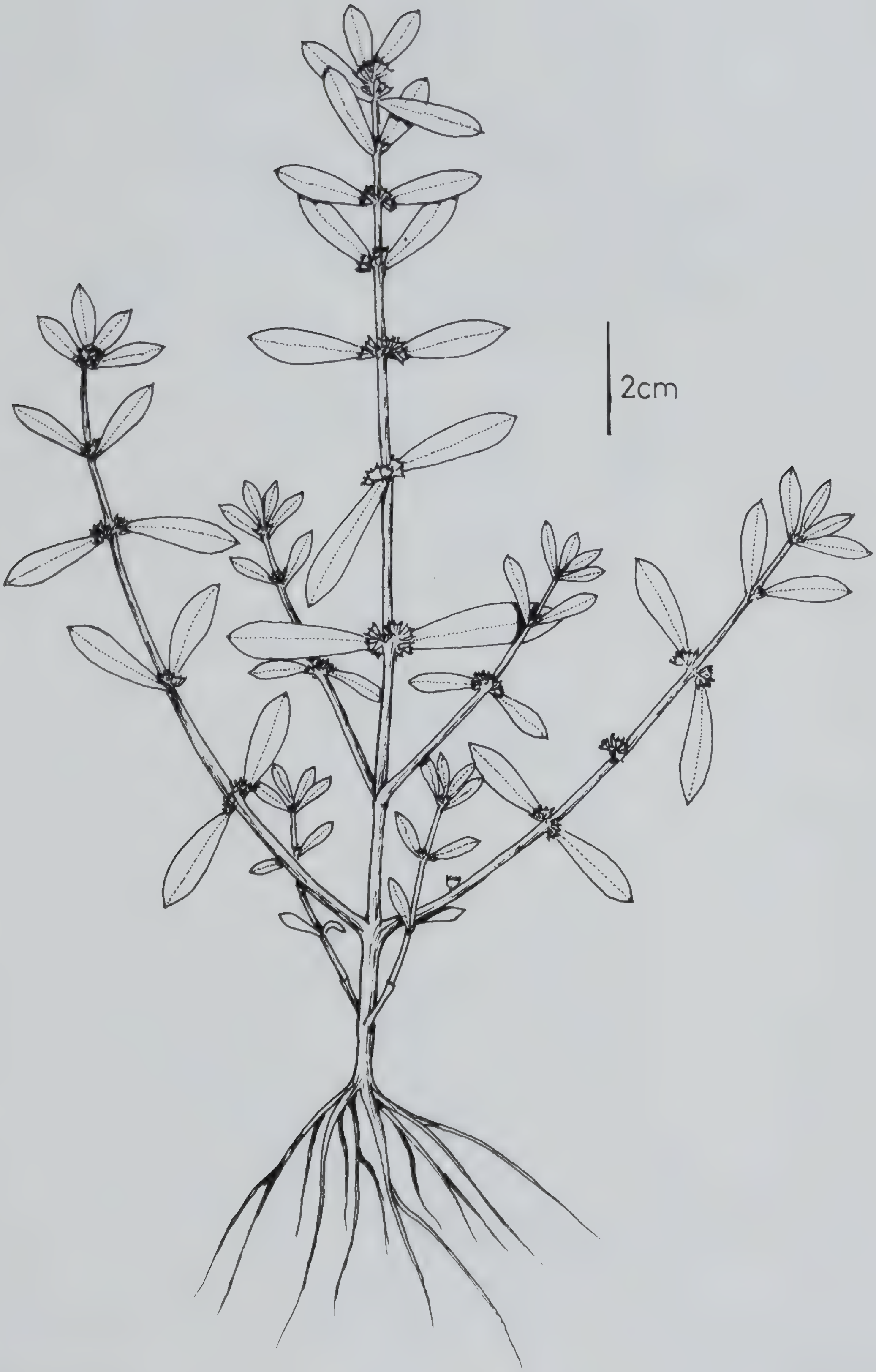
Synonym : *A. senegalensis* Lamk.

Characteristics : An erect, branched herb with 4-angled stem. Leaves opposite, with ear-like appendages at the base. Flowers pinkish, arranged in axillary, peduncled cymes. Fruit a globose capsule, red when ripe.

Habitat : Drying monsoonal pools and marshes.

Fl. & Fr. : September to December.

Reference : FBI. 2:570; FUGP. 1:350; FD. 161



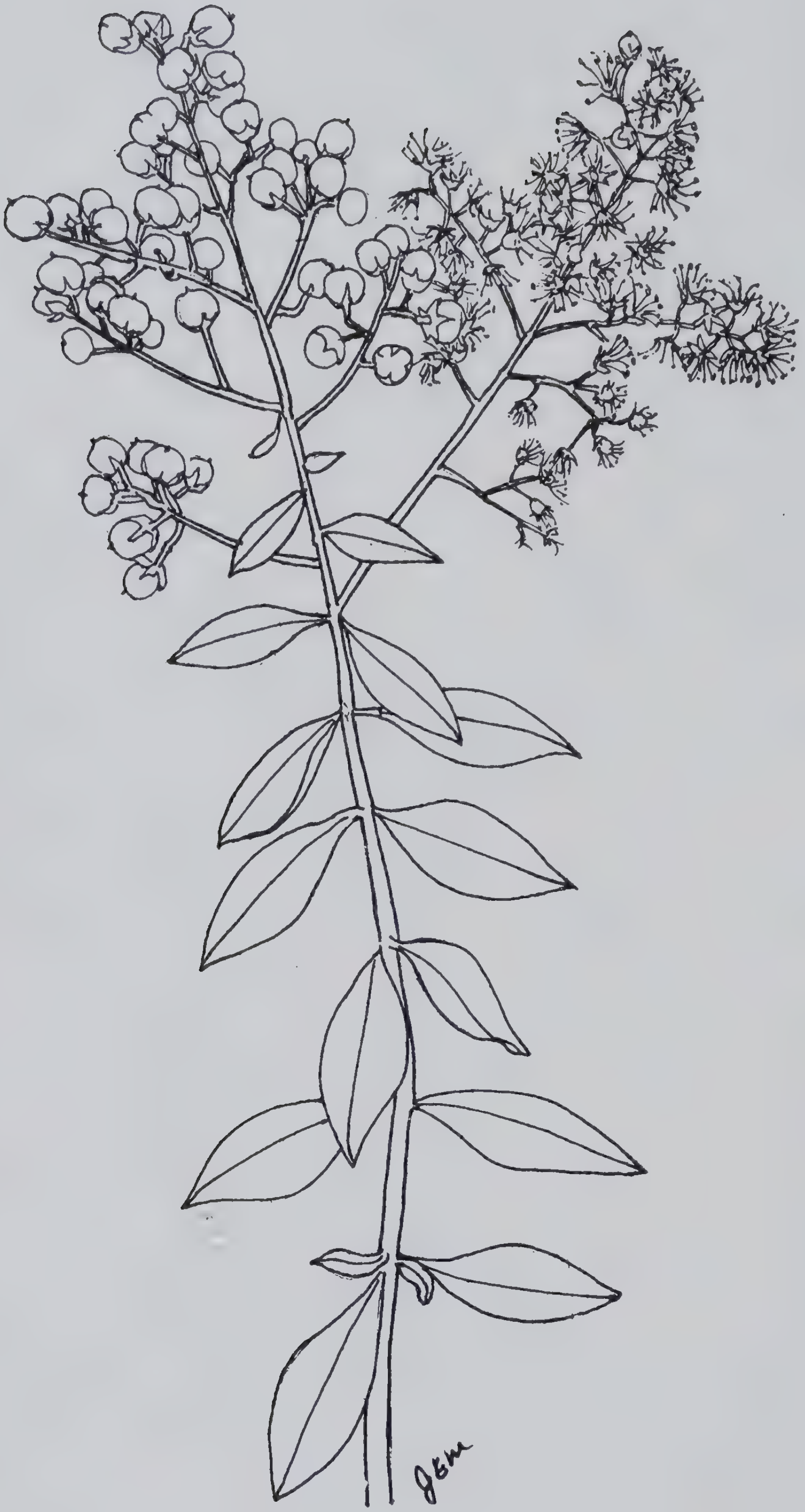
Ammannia baccifera L.

Characteristics : An erect, branched herb, up to 70 cm high. Stems angular. Leaves opposite, narrowed towards the base. Flowers in axillary clusters of 3 or more; petals absent or minute. Fruit a globose capsule, red when ripe.

Habitat : Drying, monsoonal pools and marshes.

Fl. & Fr. : September to December.

Reference : FBI. 2:569; FUGP. 1:350; FD. 161; FID. 157; FNER. 156



LAWSONIA L.

Lawsonia inermis L.

Synonym : *L. alba* Lamk.

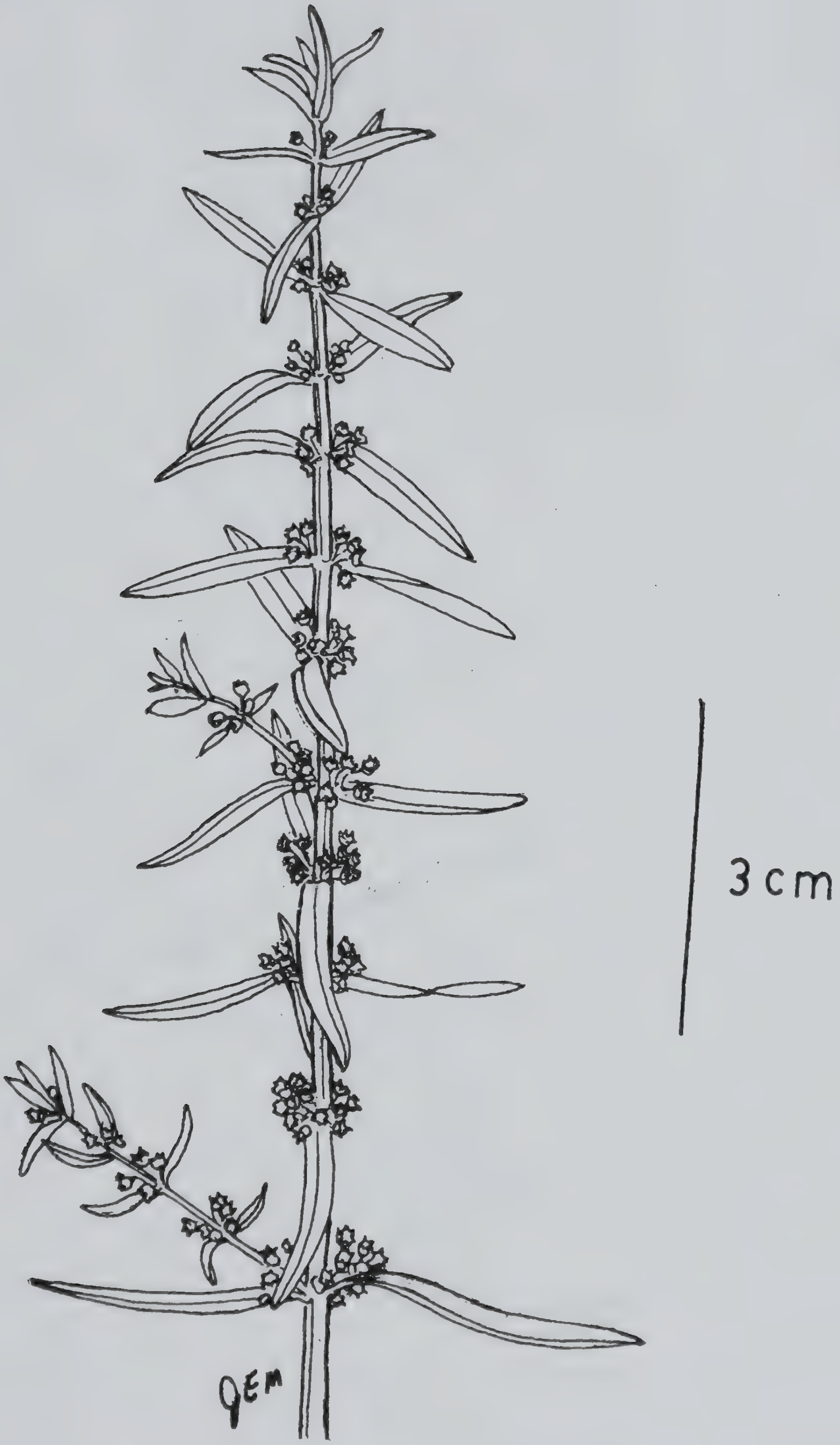
Local name : Mehndi

Characteristics : A tall shrub or small tree with greyish-brown bark. Leaves elliptic, narrowed to the base. Flowers white to light yellow, sweet scented, arranged in large panicles. Fruit a globose capsule.

Habitat : Planted along the dykes.

Fl. & Fr. : July to November.

Reference : FBI. 2:573; FUGP. 1:352; FD. 162



ROTALA L.

Rotala densiflora (Roth. ex Roem. & Schult.) Koehne

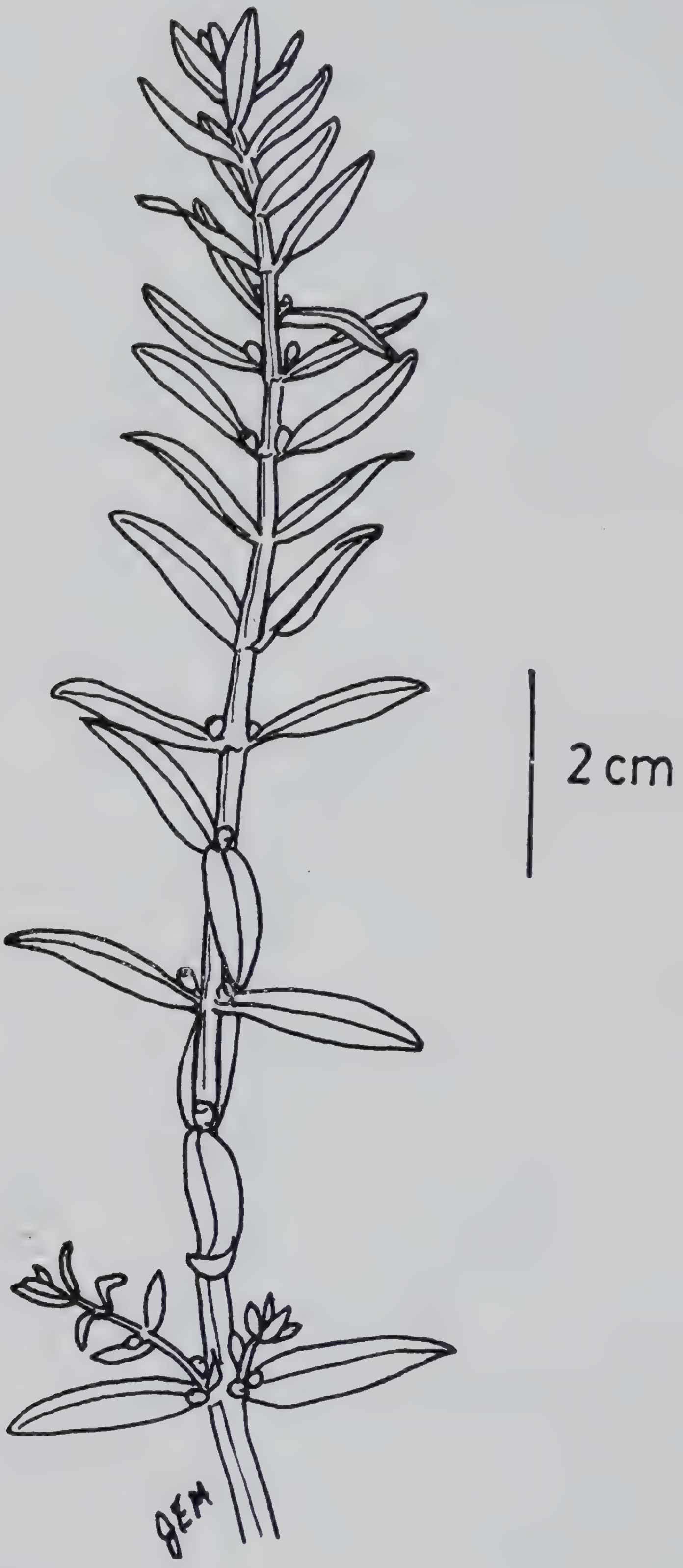
Synonym : *Ammannia pentandra* auct. non Roxb.

Characteristics : A branched, annual herb. Leaves sessile, opposite, 2.5 to 3 cm long. Flowers solitary, axillary, sessile; petals small or absent. Fruit a subglobose capsule.

Habitat : Observed infrequently in drying, monsoonal pools.

Fl.& Fr. : October to January.

Reference : FBI. 2:568; FUGP. 1:350; FMD. 134



Rotala indica (Willd.) Koehne

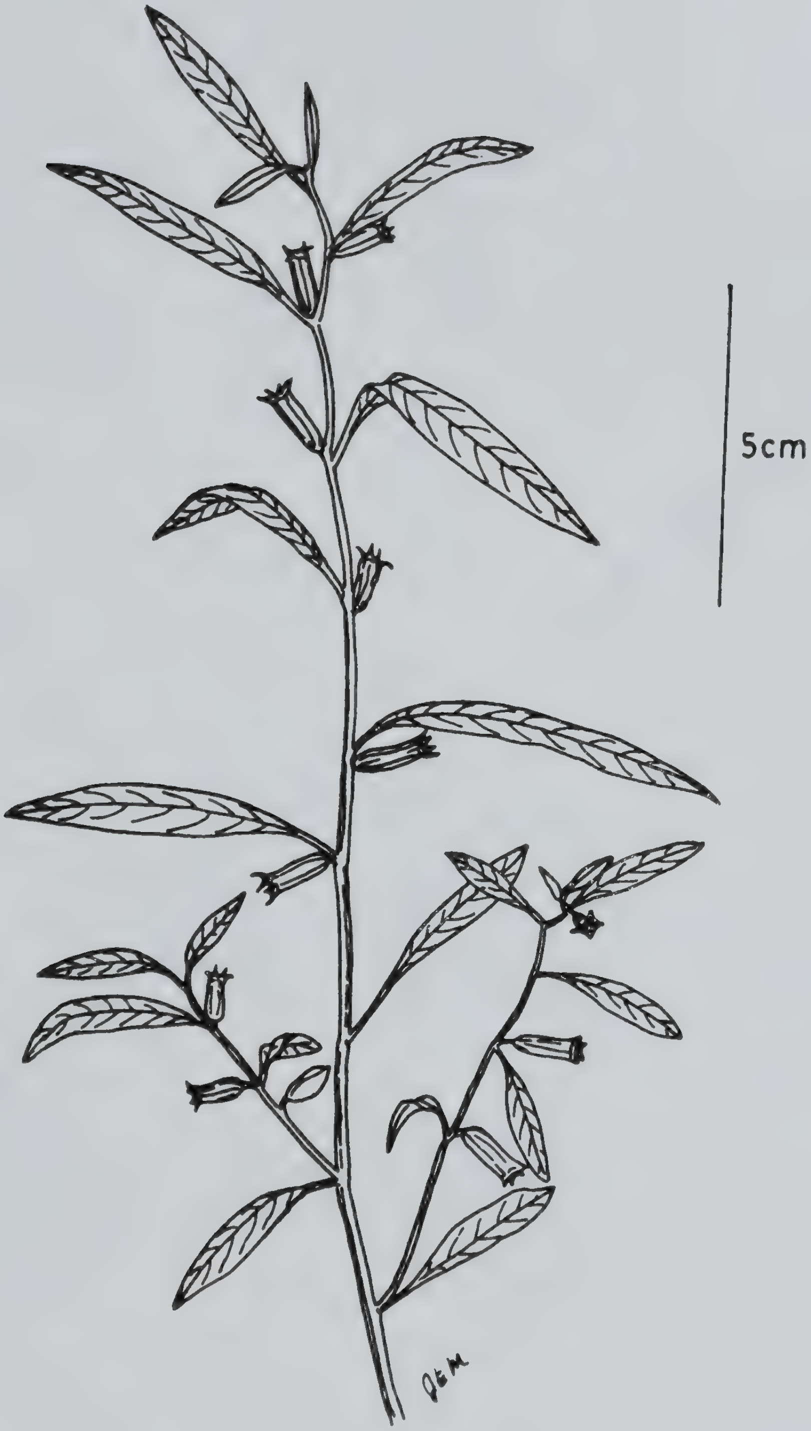
Synonym : *Ammannia peploides* Spreng.

Characteristics : An erect herb with angled stems, rooting at the base. Leaves opposite, narrowed towards the base. Flowers sessile, solitary on small axillary branches; calyx and corolla 4-segmented, petals small or absent. Fruit an elliptic capsule with 2 valves.

Habitat : Drying monsoonal pools.

Fl. & Fr. : October to January.

Reference : FBI. 2:566; FUGP. 1:349; FMD. 134

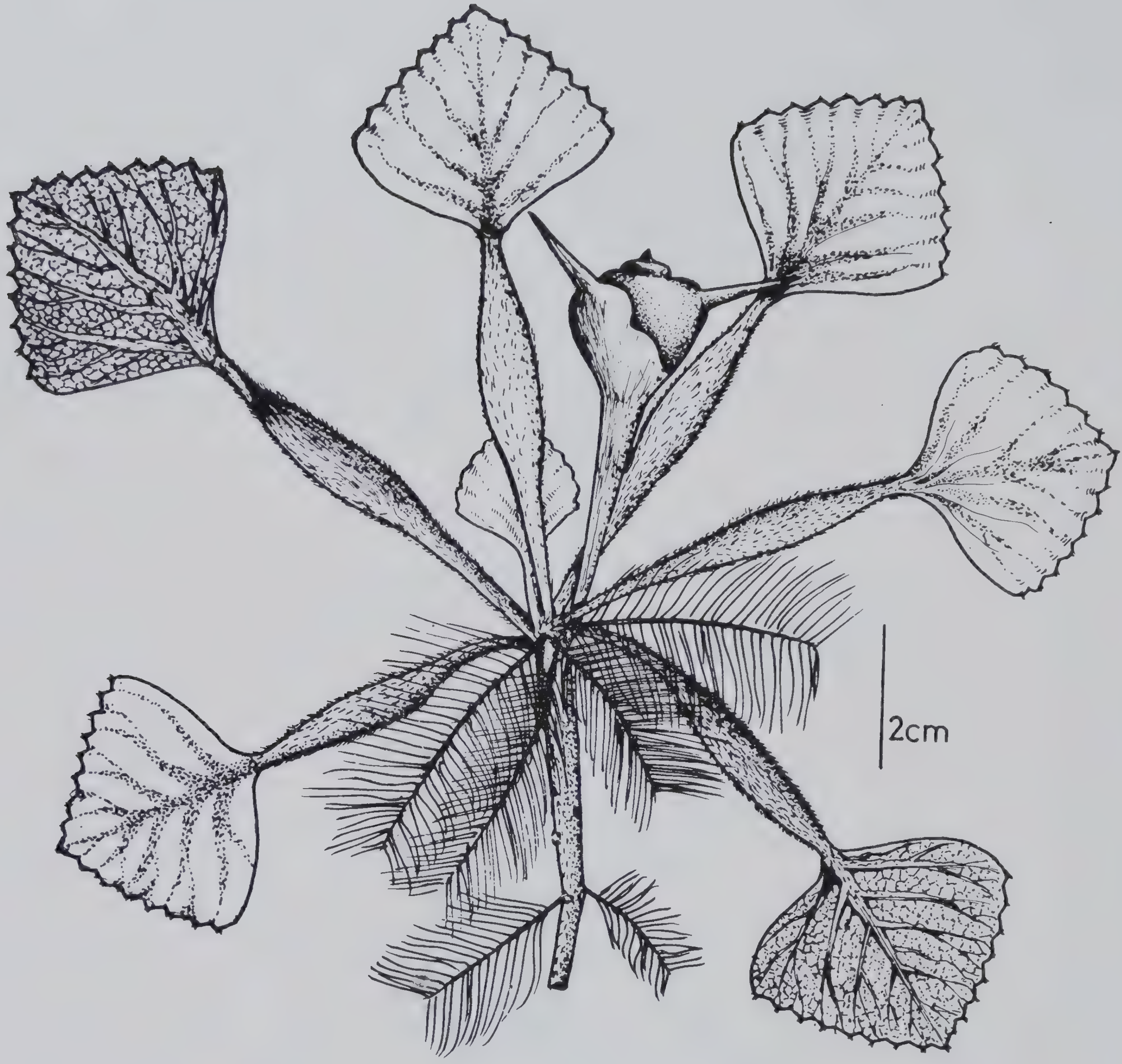


27. ONAGRACEAE

LUDWIGIA L.

Ludwigia perennis L.

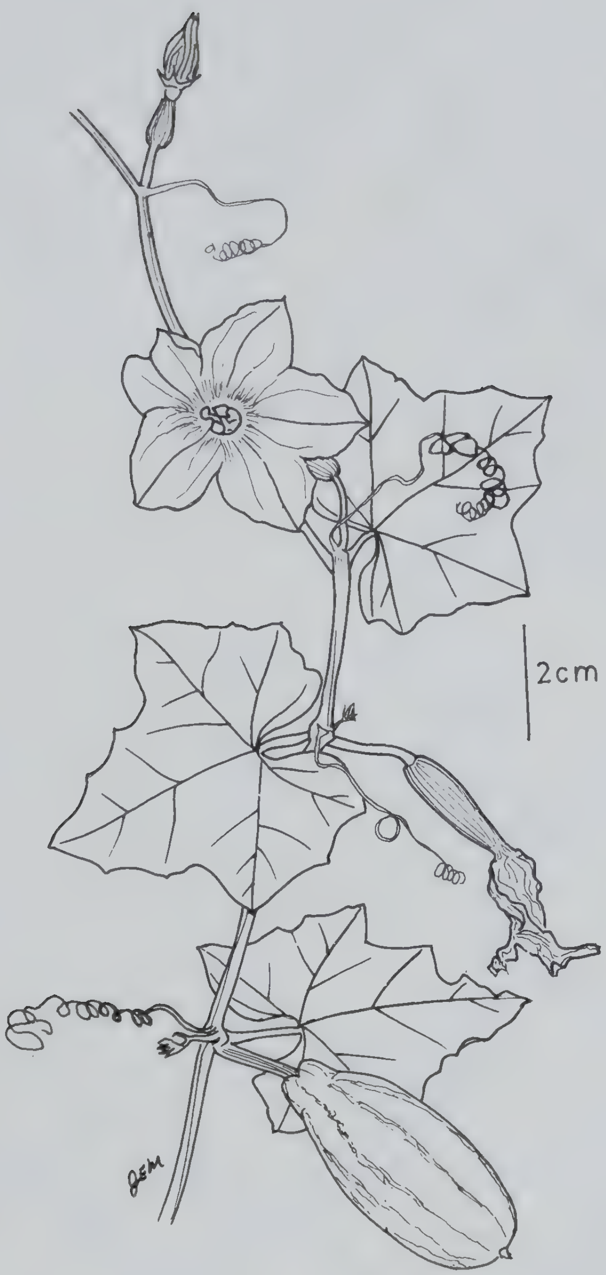
Synonyms	:	*L. parviflora* Roxb. *Jussiaea perennis* (L.) Brenan
Characteristics	:	An erect herb with glabrous, angular stems. Leaves 2.5 to 7 cm long, narrow, lanceolate, tapering towards the base. Flowers yellow, solitary in leaf axils. Fruit a sessile capsule with persistent calyx.
Habitat	:	Common in marshy area after monsoon.
Fl. & Fr.	:	September to November.
Reference	:	FBI. 2:588; FUGP. 1:356; FD. 164; FID. 159; FNER. 158



28. TRAPACEAE

TRAPA L.

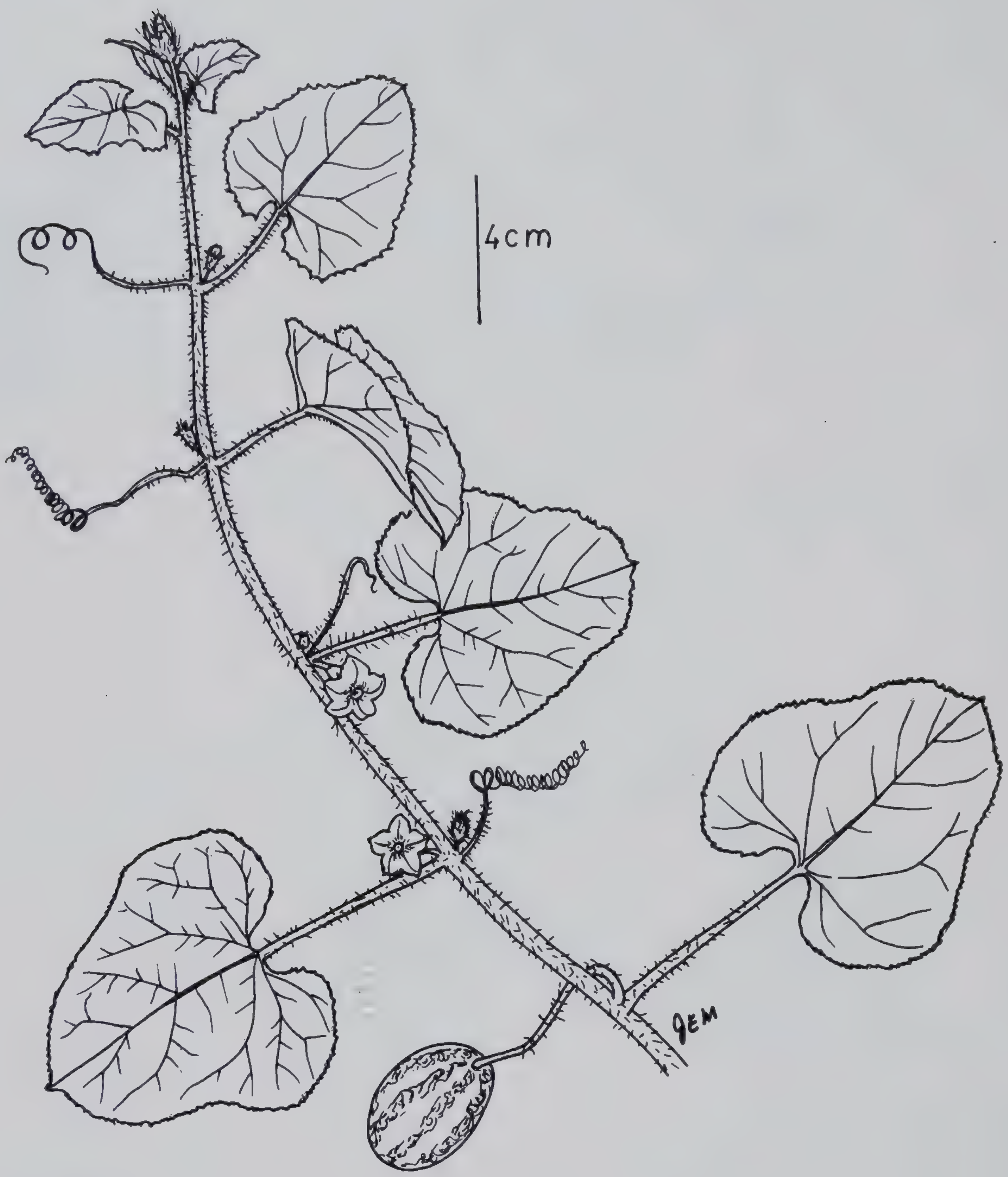
Trapa natans L. var. **bispinosa** (Roxb.) Makino
Synonym : *T. bispinosa* Roxb.
Local name : Singhara
Characteristics : An annual aquatic herb with floating leaves. Leaves with long, swollen petioles, diamond-shaped, toothed, form a rosette in the upper portion of the stem. Flowers white, solitary. Fruits angled and with 2 spiny horns.
Habitat : Aquatic area; collected only once.
Fl. & Fr. : September to November.
Reference : FBI. 2:590; FUGP. 1:358; FD. 164; FTN. 1, 1:168



29. CUCURBITACEAE

COCCINIA Wt. & Arn.
Coccinia grandis (L.) J. O. Voigh.

Synonyms	:	*C. cordifolia* (L.) Cogn. *C. indica* Wt. & Arn. *Cephalandra indica* Naud.
Local name	:	Gulkakad
Characteristics	:	A perennial, twining vine with grooved, glabrous stems. Leaf size and shape varies, glandular-tipped at margins, usually 5-lobed. Tendrils unbranched. Flowers white, unisexual with male and female on different plants, solitary in leaf axils. Fruits fleshy, with white streaks, bright red when ripe.
Habitat	:	Found along roadsides throughout the uplands.
Fl. & Fr.	:	July to December.
Reference	:	FBI. 2:621; FUGP. 1:376; FD. 171; FID. 163; FNER. 163



CUCUMIS L.

Cucumis melo L.

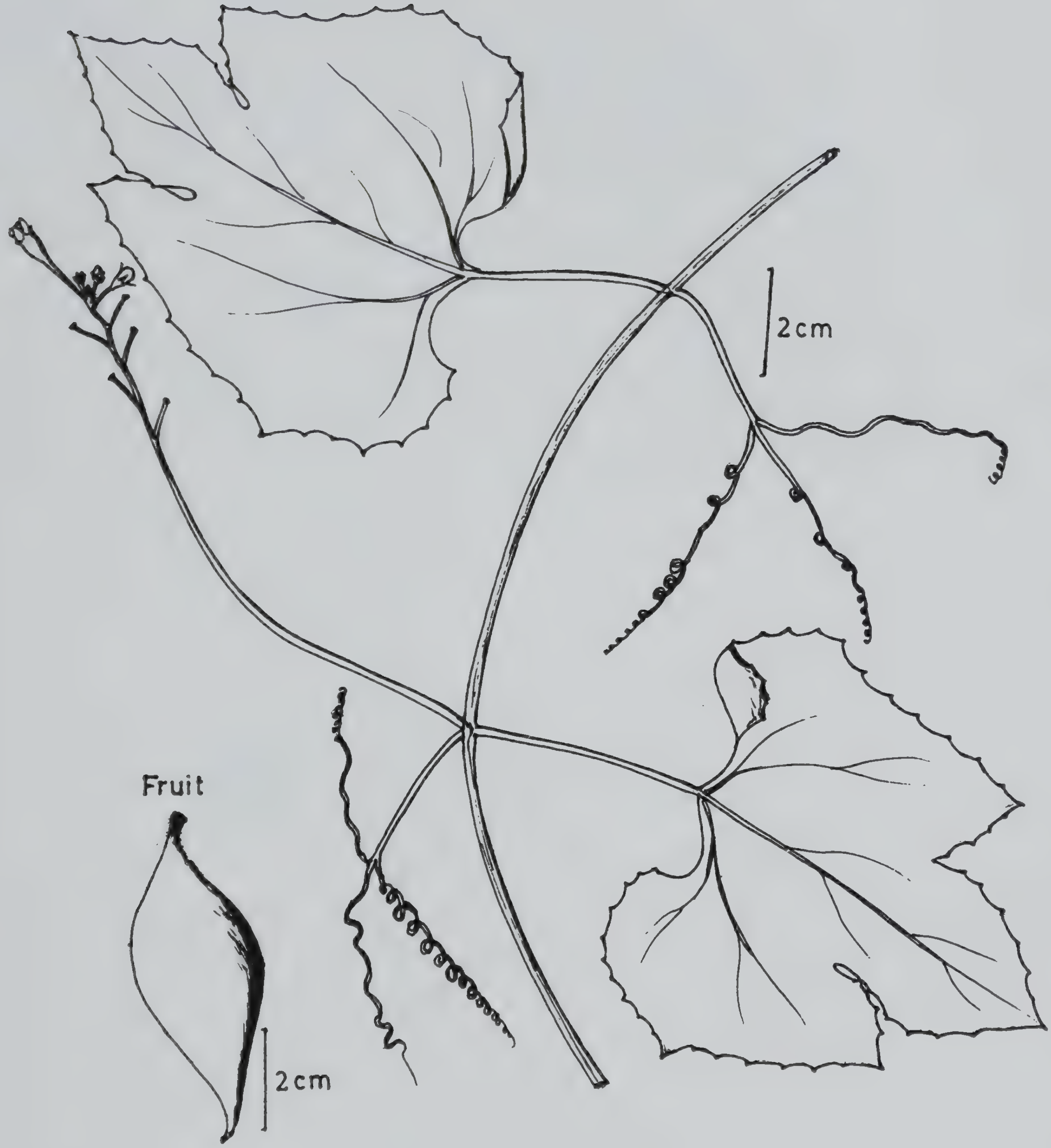
Synonym : *C. callosus* (Rottl.) Cogn.

Characteristics : A creeping, annual herb with angular stems and bristly hairs throughout. Leaves 6 to 10 cm long, 3 to 5-lobed, minutely toothed at margin. Tendrils unbranched. Flowers yellow, arranged in clusters of 1 to 3 in leaf axils, unisexual with male and female flowers on the same plant. Fruits variable in shape, hairy, yellow to orange when ripe.

Habitat : Commonly found throughout the uplands after monsoon season.

Fl. & Fr. : November to December.

Reference : FBI. 2:620; FUGP. 1:371; FD. 169; FID. 168



LUFFA Mill.

Luffa acutangula (L.) Roxb. var. **amara** (Roxb.) Clarke

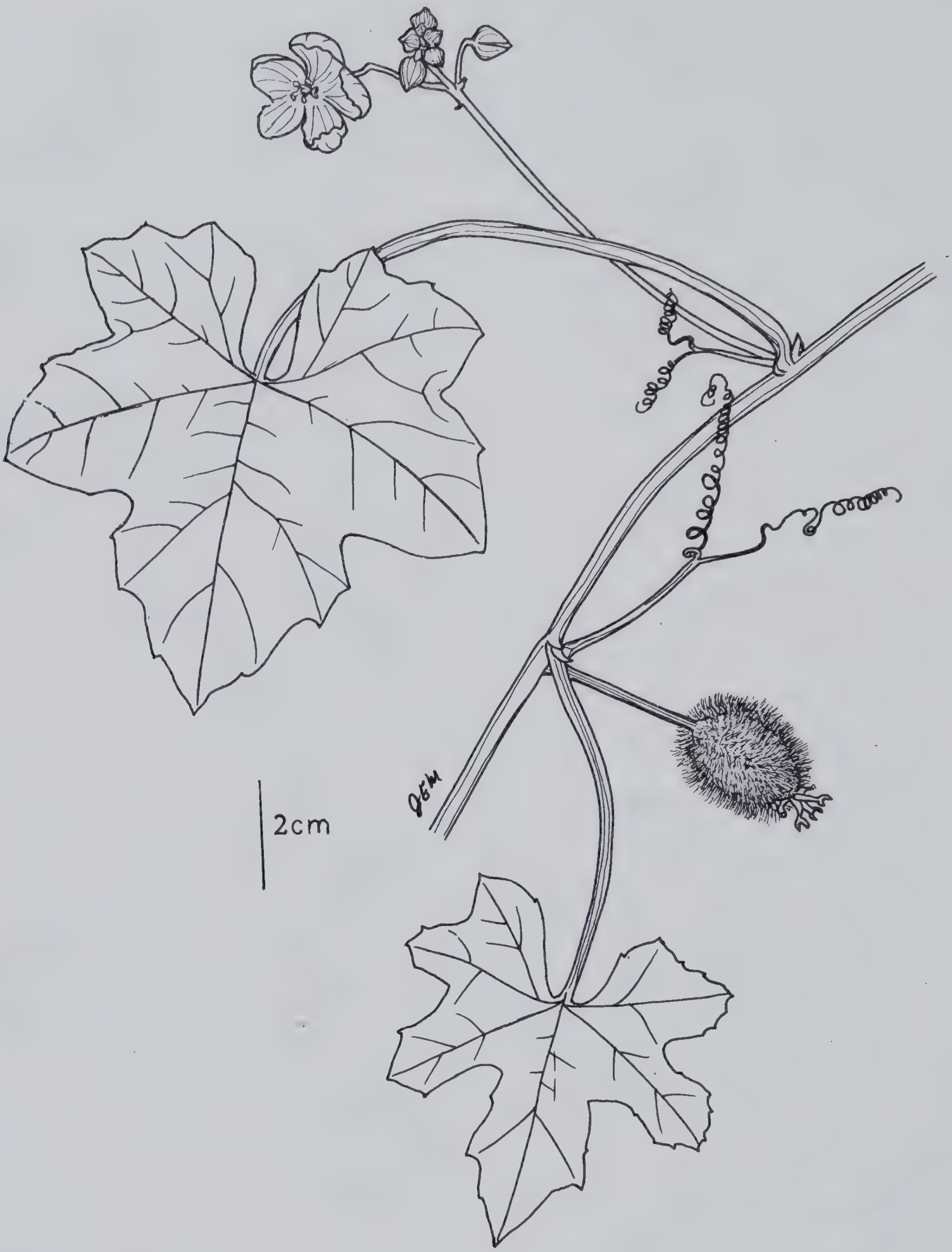
Local name : Jangli torai

Characteristics : An annual, climbing vine with angular stems. Stems hairy on angles. Tendrils 3- fid at tip. Leaves 5-angled, hairy on upper and lower surfaces, minutely toothed at margin. Flowers yellow, unisexual, with male and female flowers occurring on same plant; male flowers in axillary racemes and female solitary in leaf axils. Fruits 5 to 8 cm long, 10-ribbed. Seeds black when mature.

Habitat : Commonly found after rainy season, climbing on trees and shrubs along road sides and throughout the uplands.

Fl. & Fr. : August to October.

Reference : FBI. 2:615; FUGP. 1:367; FID. 171; FNER. 166



Luffa echinata Roxb.

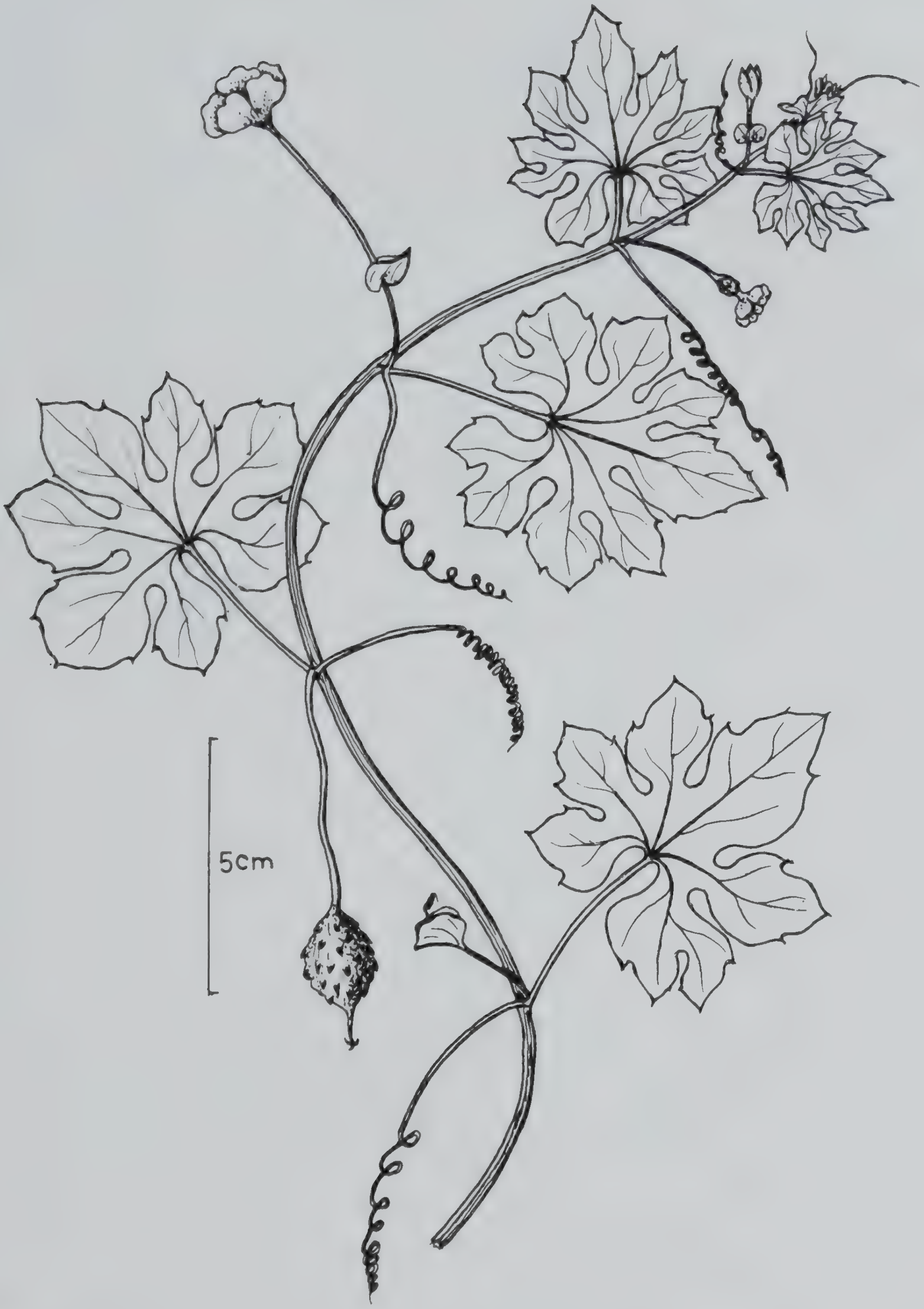
Local name : Karai banyar

Characteristics : An annual vine with slender, 5-angled stems. Leaves 5-lobed, cordate at base, toothed at margin. Tendrils 2-fid. Flowers white, unisexual with male and female on same plant; male flowers in axillary racemes and females solitary in leaf axils. Fruits 2 to 3.5 cm long, covered with soft spines.

Habitat : Commonly found climbing on tall grasses and shrubs in wet areas.

Fl. & Fr. : August to December.

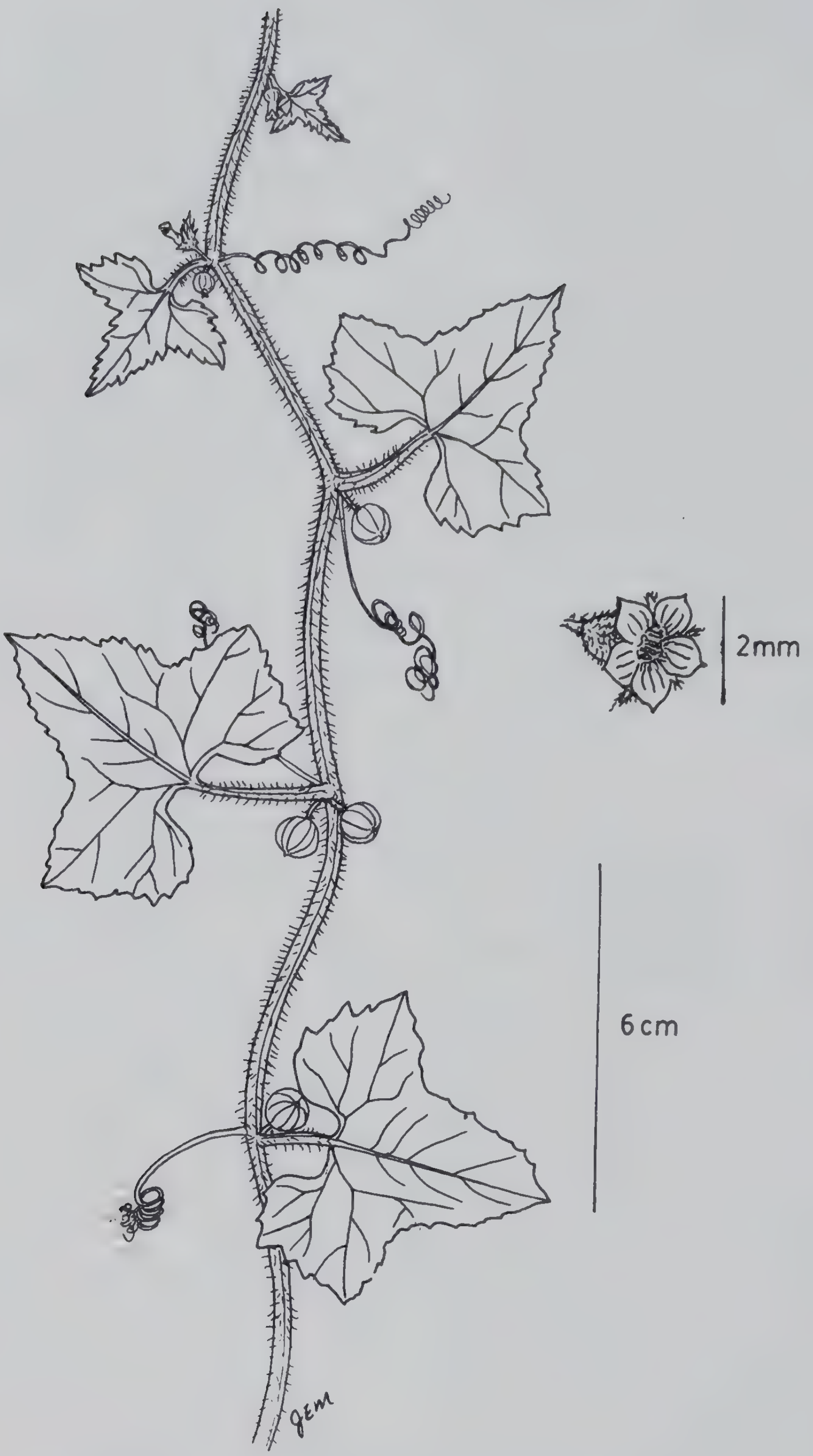
Reference : FBI. 2:615; FUGP. 1:367; FID. 172



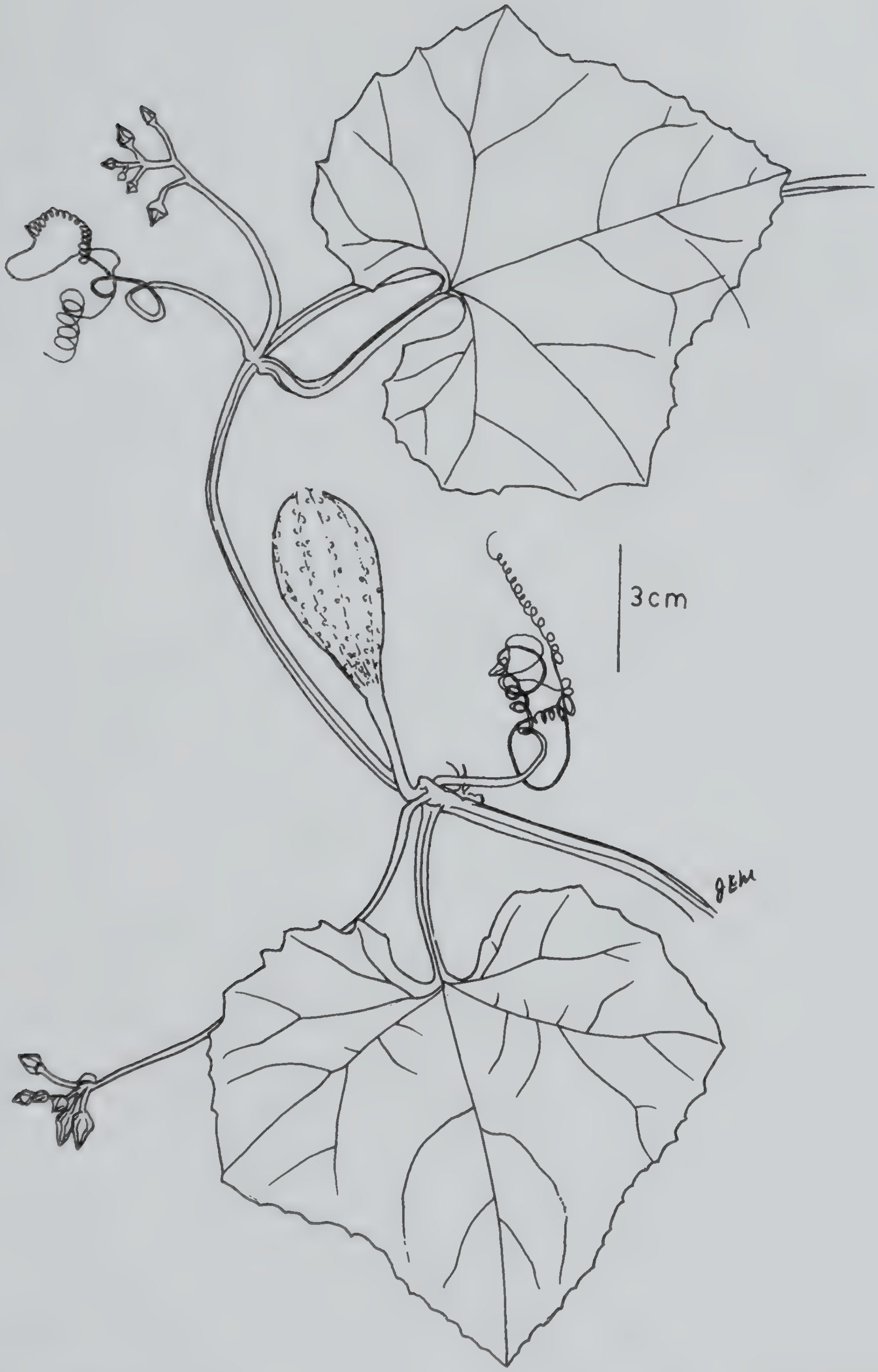
MOMORDICA L.

Momordica charantia L. var. **muricata** (Willd.) Chakravarty

Local name	:	Rumia karela
Characteristics	:	A climbing, annual vine with angular stems. Leaves 5 to 7-lobed, with each lobe narrowed at base, toothed at margin. Tendrils unbranched. Flowers yellow, unisexual, male and female flowers arranged solitarily in leaf axils on same plant. Fruit 5 to 10 cm long, oval, with several tubercles on the surface, red when ripe.
Habitat	:	Common after rainy season, climbing on small shrubs throughout the park.
Fl. & Fr.	:	August to October.
Reference	:	FBI. 2:616; FUGP. 1:369; FID. 173; FNER. 167



MUKIA Arn.
Mukia maderaspatana (L.) M. Roem.
Synonyms : *M. scabrella* Arn.
Melothria maderaspatana Cogn.
Characteristics : An annual vine covered with bristly hairs. Leaves usually triangular and toothed at margin. Tendrils unbranched. Flowers yellow, unisexual; male and female flowers in axillary clusters on same plant. Fruits globose, red when ripe.
Habitat : Climbing on shrubs and herbs throughout drier parts of the park.
Fl. & Fr. : August to December.
Reference : FBI. 2:623; FUGP. 1:379; FD. 166; FID. 175; FNER. 168



TRICHOSANTHES L.

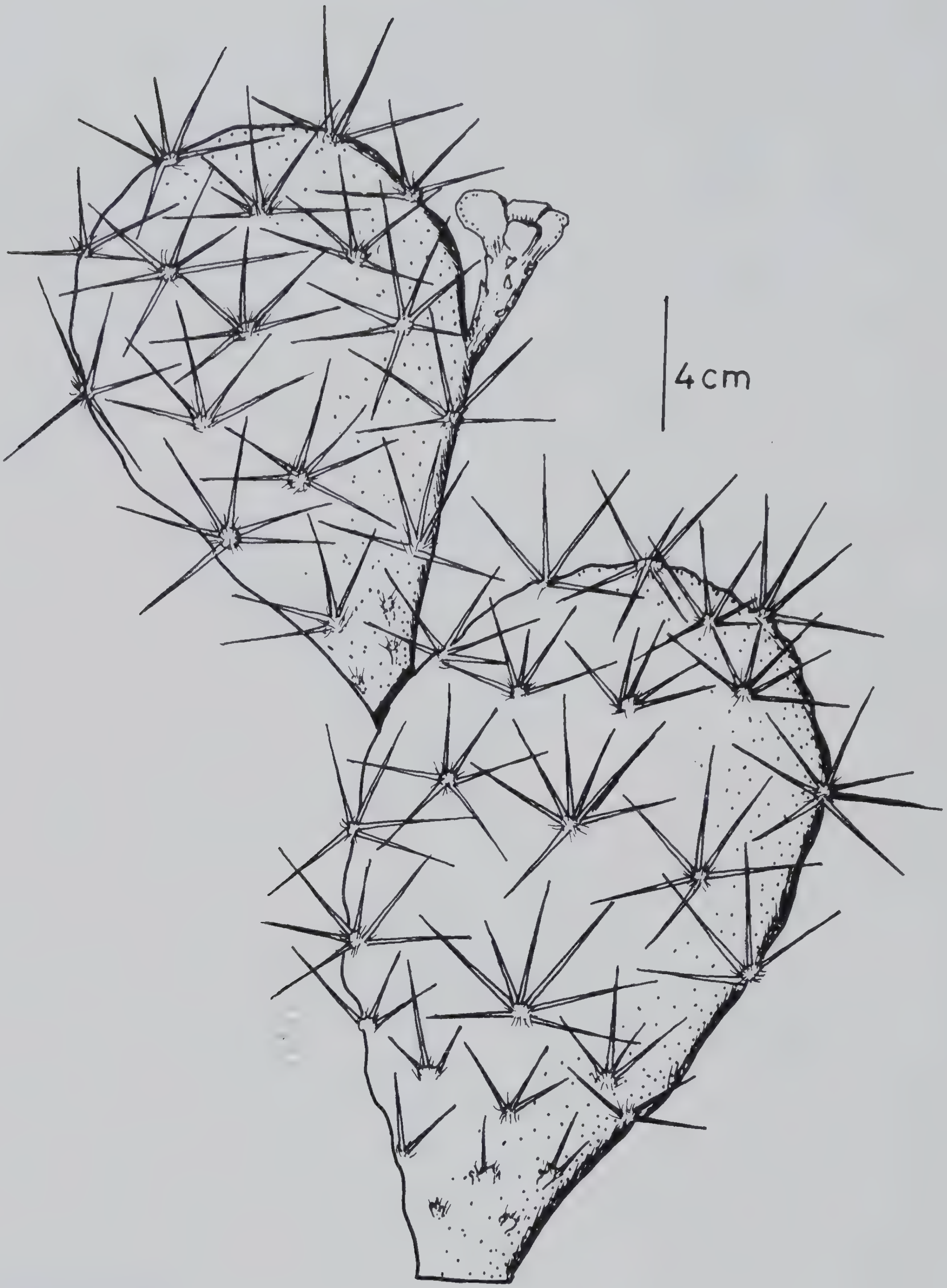
Trichosanthes cucumerina L.

Characteristics : An annual vine with 2 to 3-fid tendrils. Leaves usually 5-lobed, toothed at margin. Flowers white, unisexual; male peduncle in pairs, one single-flowered and the other a raceme; female flowers solitary. Fruits conical with pointed end, yellow with red pulp when ripe.

Habitat : Climbing on trees and shrubs throughout the park after rainy season.

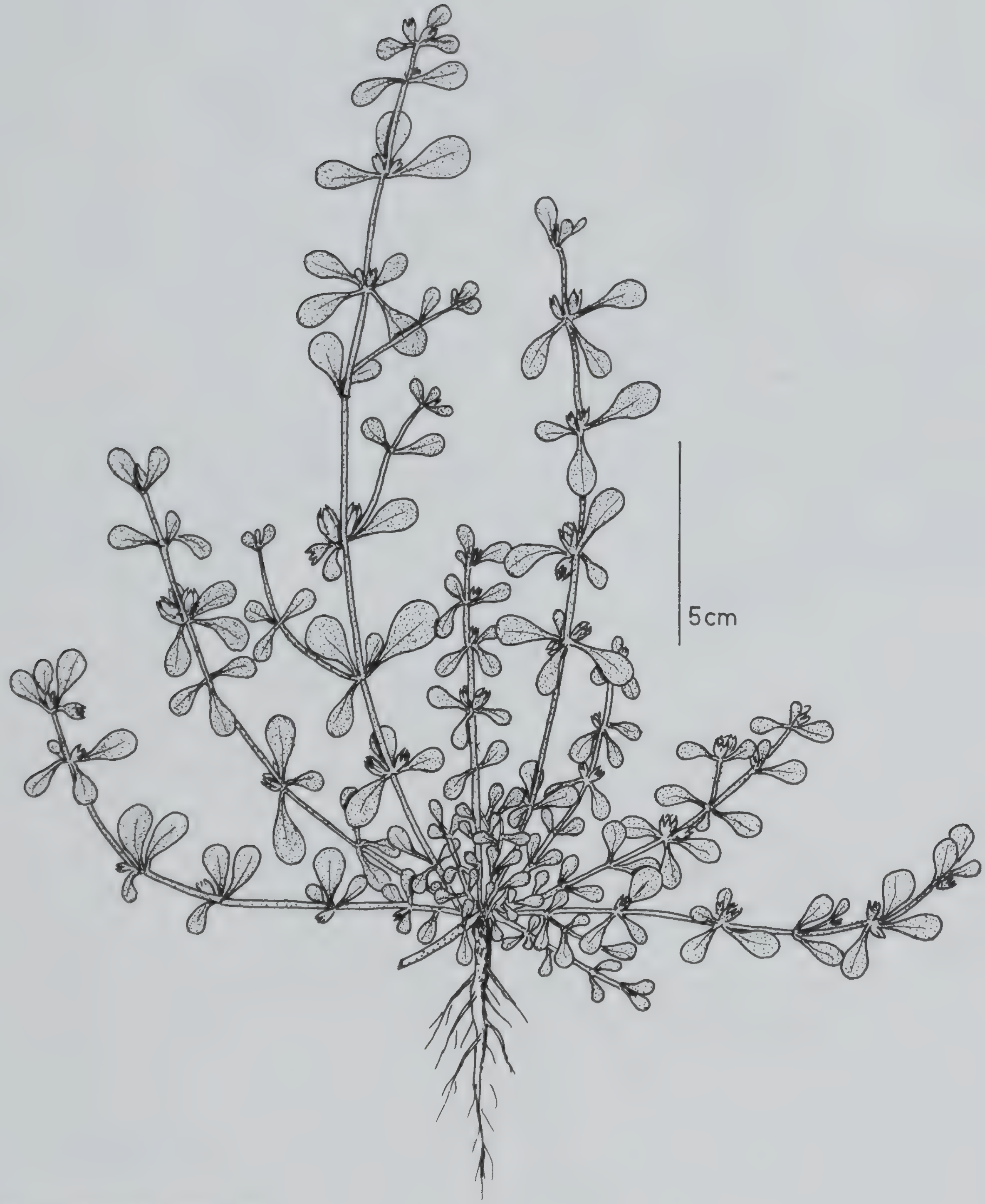
Fl. & Fr. : August to November.

Reference : FBI. 2:609; FUGP. 1:364; FD. 167



30. CACTACEAE

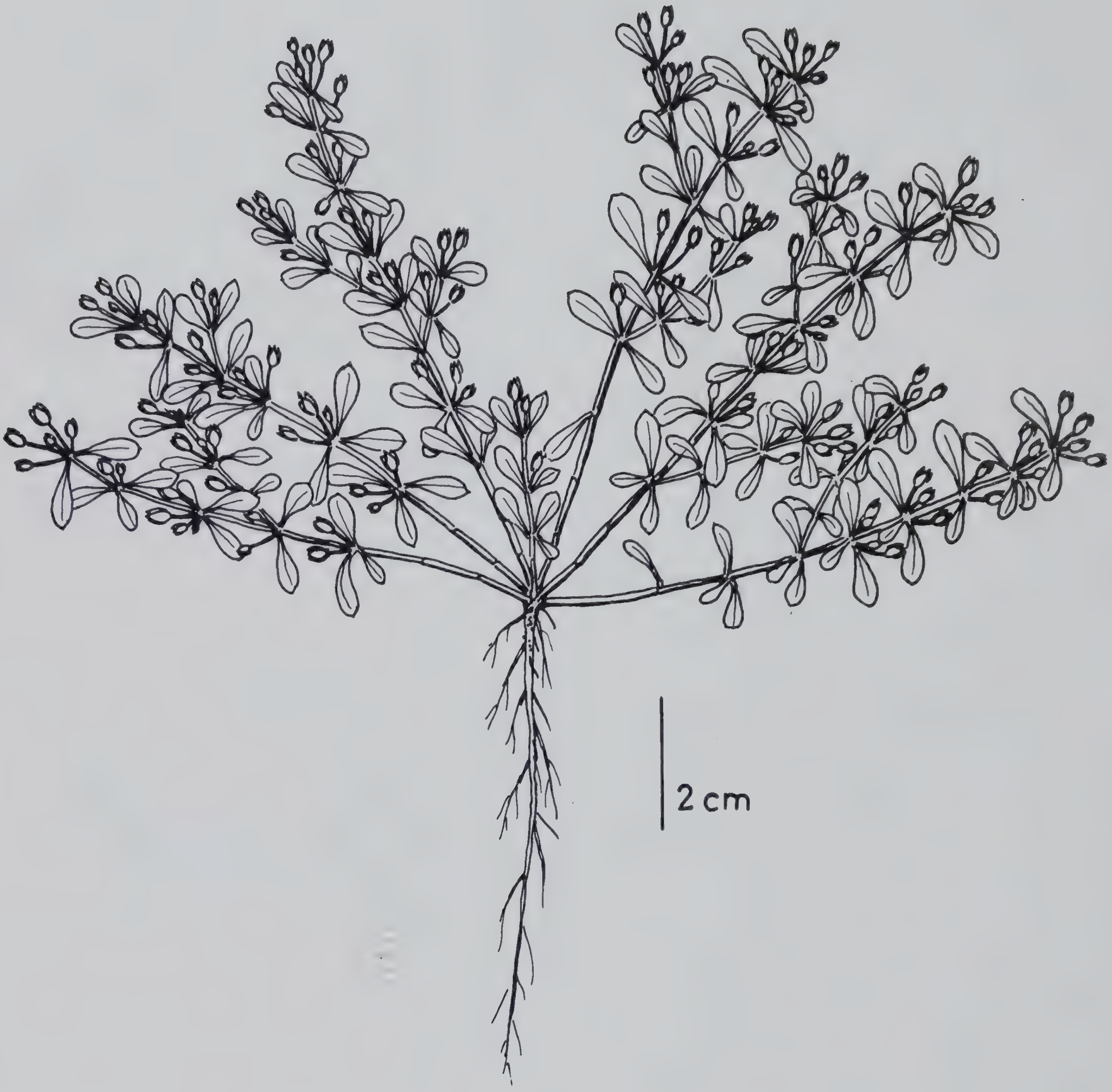
OPUNTIA Mill.
Opuntia elatior Mill.
Local name : Nagphani
Characteristics : A succulent, thorny cactus with flat, jointed, green stems. Spines brownish. Leaves absent. Flowers orange-yellow. Fruits red when ripe.
Habitat : Found in dry, sandy areas.
Fl. & Fr. : April to May.
Reference : FD. 173; FID. 177; FNER. 169



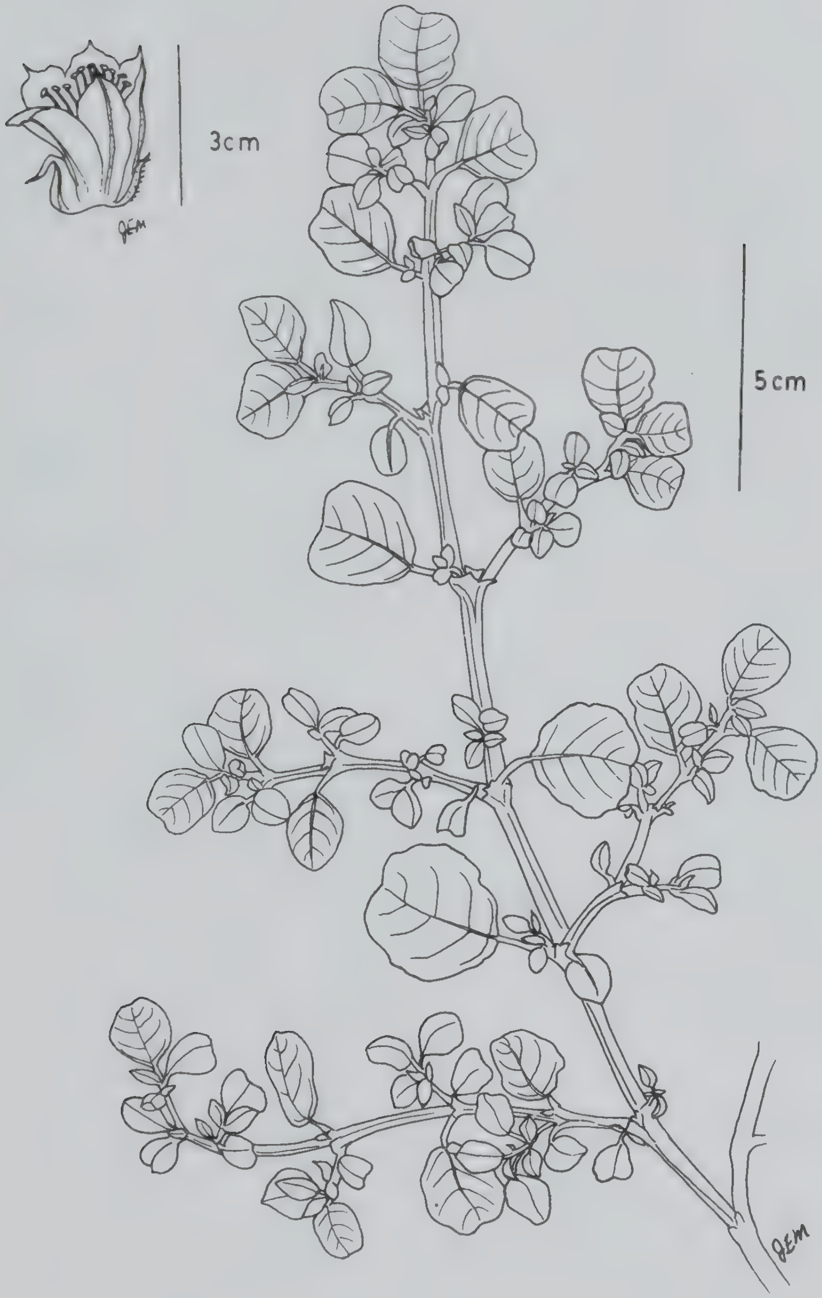
31. MOLLUGINACEAE

GLINUS L.
Glinus lotoides L.

Synonym : *Mollugo hirta* Thunb.
Characteristics : A prostrate, branched herb, densely hairy throughout. Leaves unequal in size, arranged in false whorls. Flowers greenish, in axillary clusters; pedicels unequal in length. Fruit a capsule enclosed by the persistent calyx.
Habitat : Found on banks of aquatic area; not common.
Fl. & Fr. : November to March.
Reference : FBI. 2:662; FUGP. 1:386; FD. 173; FID. 179; FNER. 172



Glinus oppositifolia (L) A. DC.
Synonyms : *Mollugo oppositifolia* L.
M. spergula L.
Characteristics : A diffuse, many-branched, glabrous herb. Leaves obovate to spoon-shaped, arranged in whorls. Flowers white, arranged in clusters in leaf axils; pedicel slender. Fruit a 3-valved capsule with numerous brown seeds.
Habitat : Common in moist, shady areas along roadsides and near aquatic areas.
Fl. & Fr. : July to March.
Reference : FBI. 2:662; FUGP. 1:387; FD. 174



32. AIZOACEAE

TRIANTHEMA L.

Trianthema portulacastrum L.

Synonym : *T. monogyna* L.

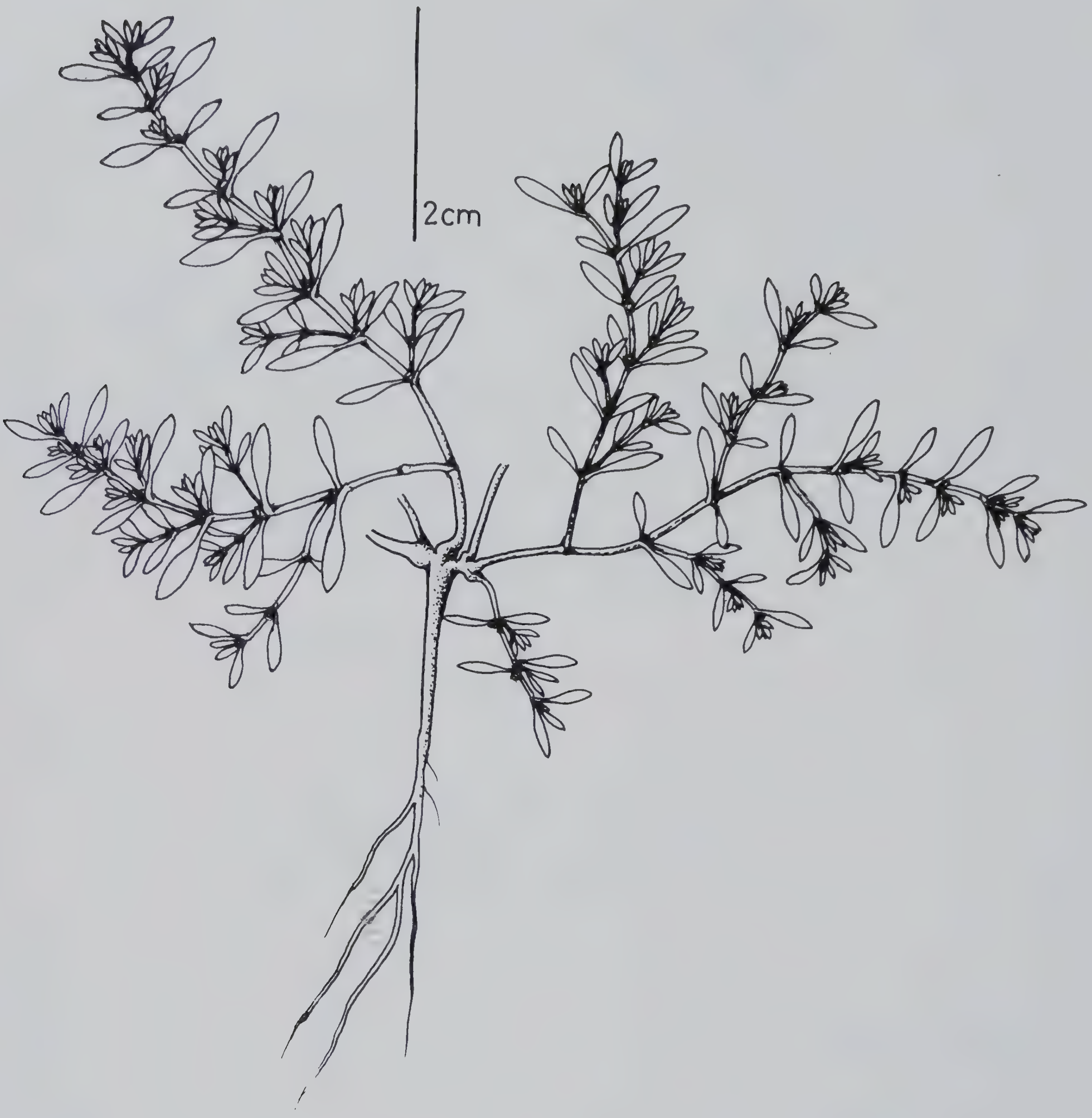
Local name : Santi

Characteristics : A prostrate, succulent herb, usually with pink-shaded stems. Leaves round, in opposite pairs, unequal in size, sheathed at the base. Flowers pinkish or white, solitary in a pouch formed by leaf sheath. Fruit a capsule, breaking into an upper lid and a lower embedded cup. Seeds concentrically wrinkled, blackish.

Habitat : Common in moist areas throughout the park after monsoon.

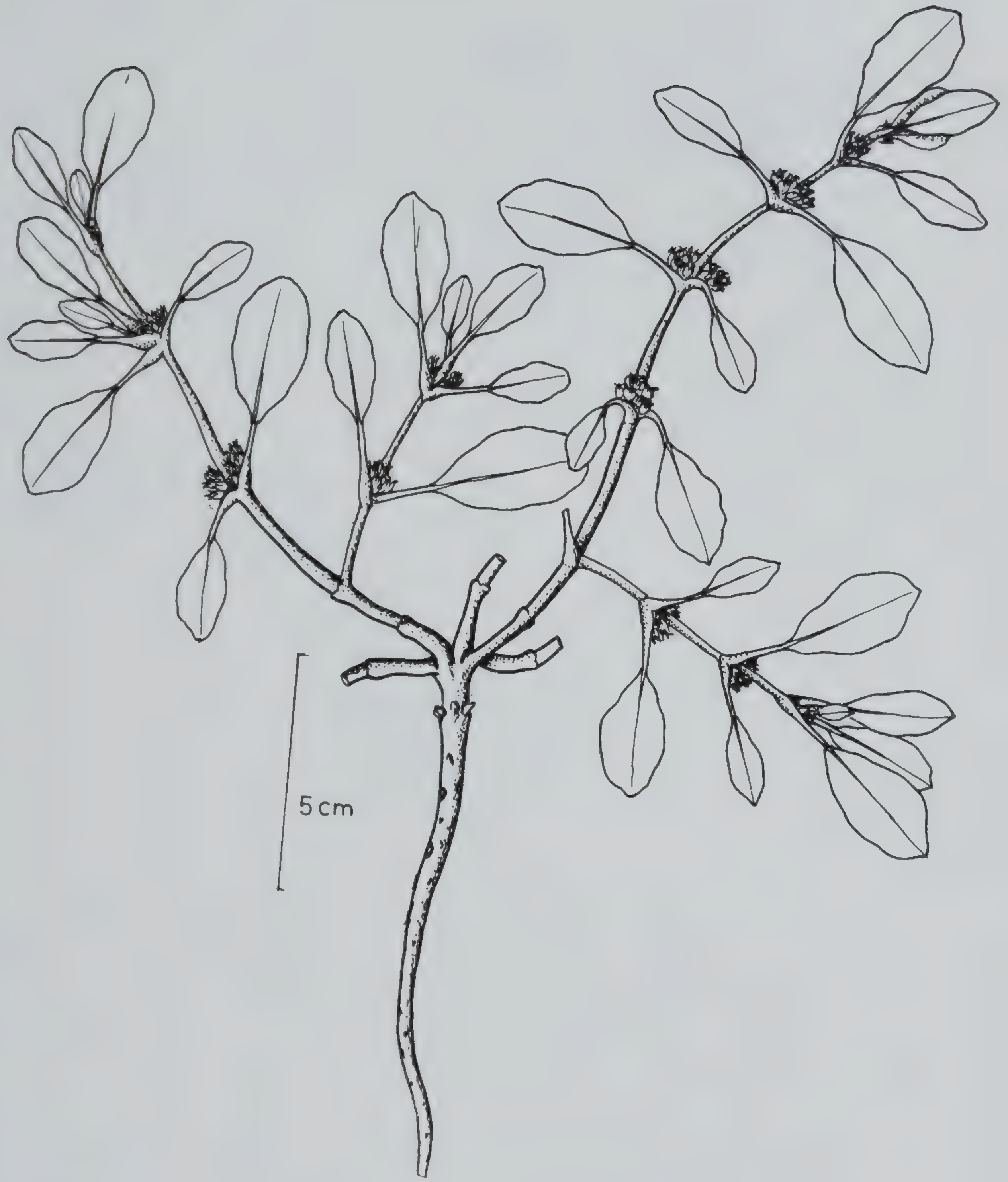
Fl. & Fr. : July to November.

Reference : FBI. 2:660; FUGP. 1:385; FD. 176; FID. 184; FNER. 175



Trianthema triquetra Rottl. & Willd.

Synonym	:	*T. crystallina* auct. non Vahl
Characteristics	:	A many-branched, prostrate herb. Leaves linear, equal in size. Flowers solitary or in axillary clusters of 2 to 5, not enclosed in a petiolar pouch. Fruit a capsule enclosed by the calyx tube. Seeds faintly ribbed, blackish.
Habitat	:	Common in moist, sandy soil throughout the park.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 2:660; FUGP. 1:385; FID. 184; FNER. 176



ZALEYA Burm. f.

Zaleya govindia (Buch.-Ham. ex G. Don) N. C. Nair

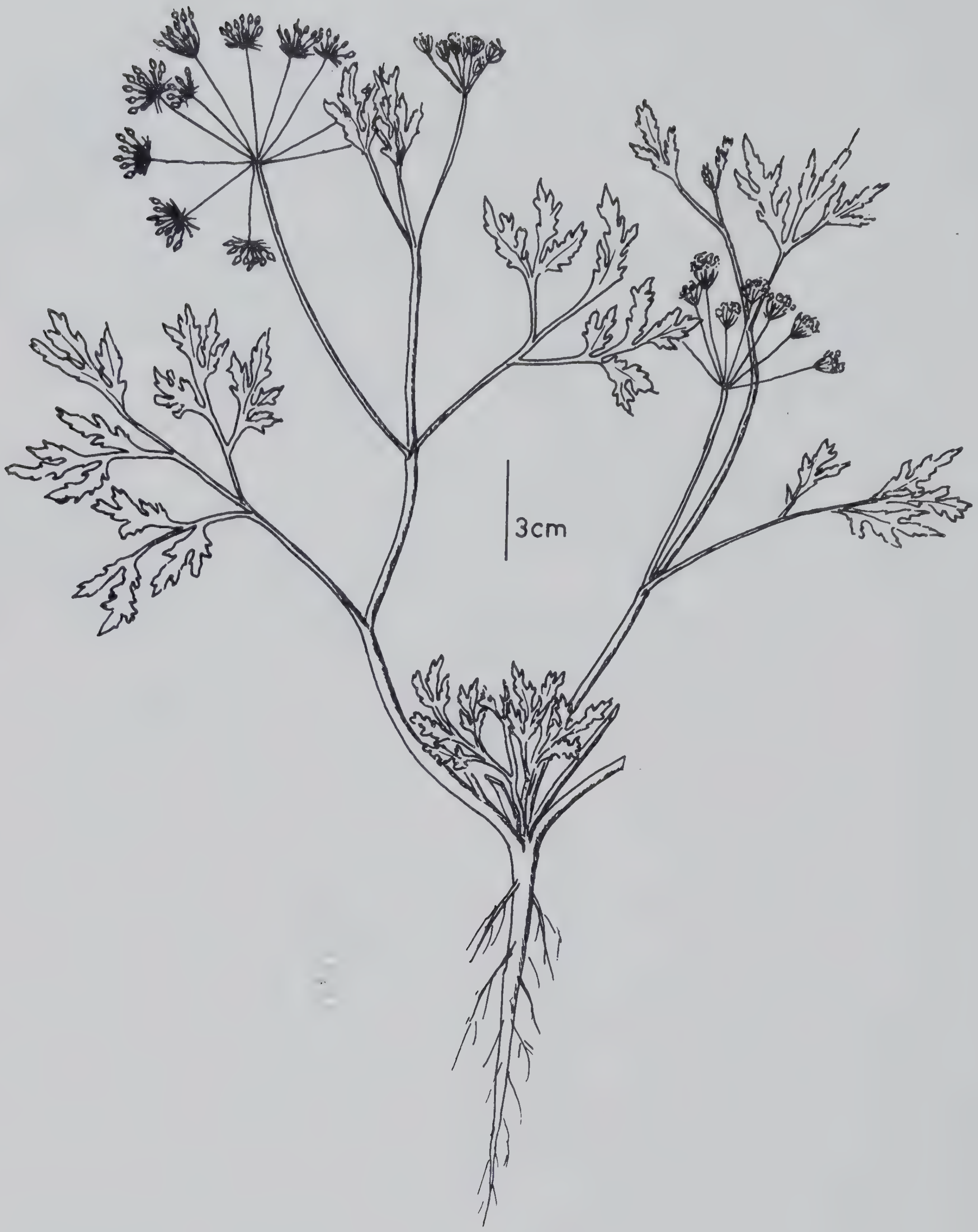
Synonyms : *Trianthema govindia* Buch.-Ham. ex G. Don
T. pentandra auct. non L.

Characteristics : A prostrate, deep-rooted herb branching from the base. Leaves 1 to 2 cm long, opposite, oblong in shape, unequal in size. Flowers pinkish, arranged in axillary clusters. Fruit a capsule with dull-black seeds.

Habitat : Dry, open areas; not common.

Fl. & Fr. : June to September.

Reference : FBI. 2:660; FD. 175; FNER. 177



SESELI L.

Seseli diffusum (Roxb. ex Sm.) Santapau & Wagh

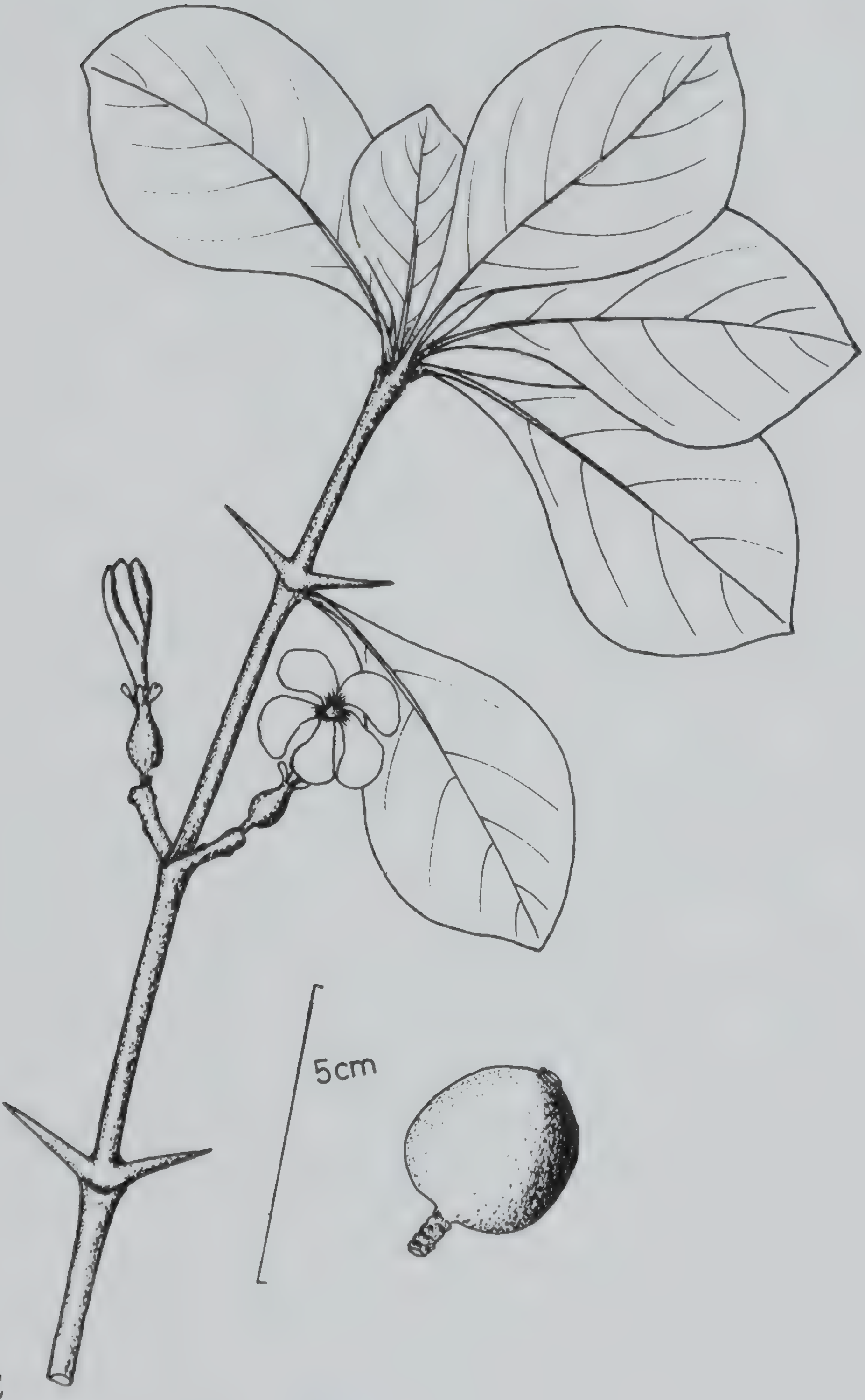
Synonym : *S. indicum* Wt. & Arn.

Characteristics : A many-branched annual with bipinnately compound leaves. Flowers pinkish-white, in axillary, compound umbels. Fruits subglobose.

Habitat : Dry sandy areas; not common.

Fl. & Fr. : March to May.

Reference : FBI. 2:693; FUGP. 1:395; FMD. 150

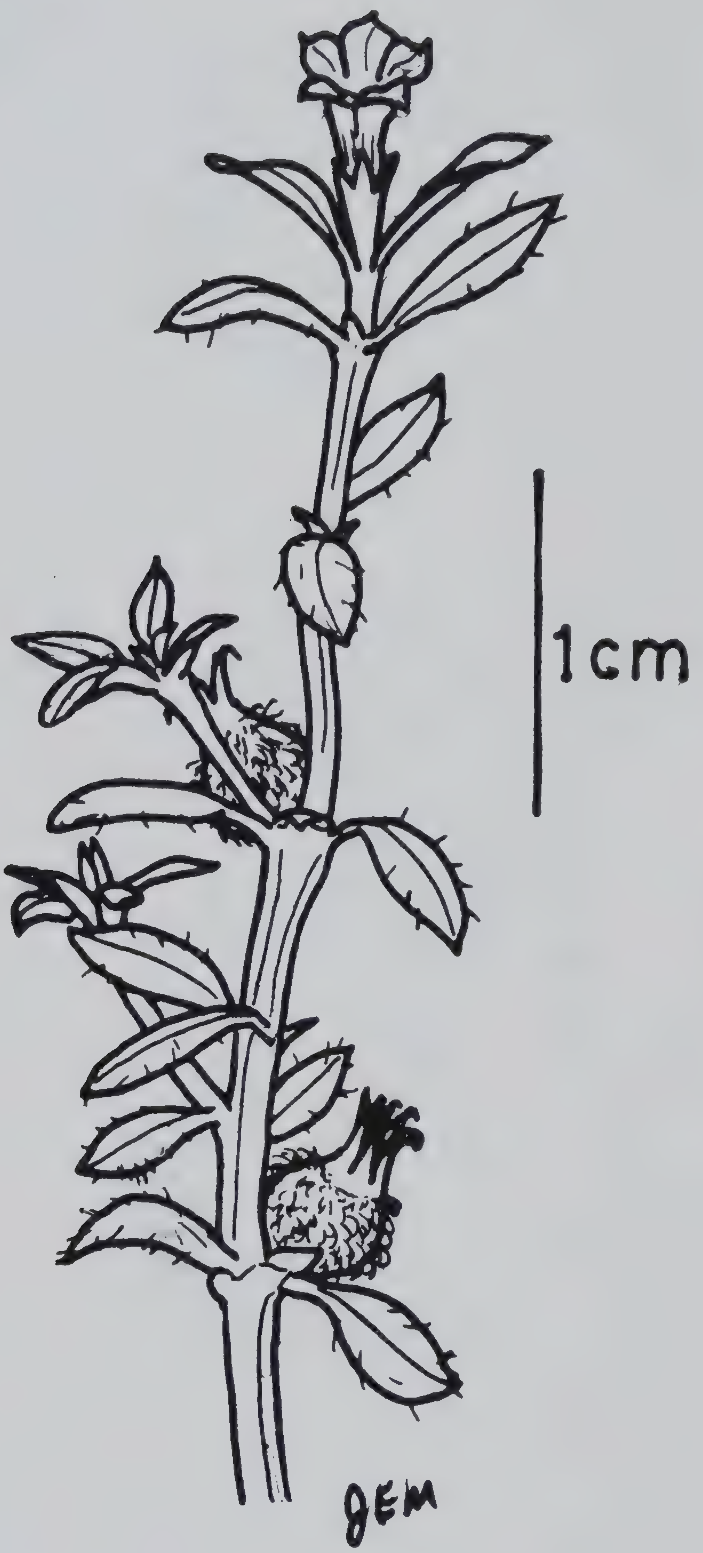


34. RUBIACEAE

CATUNAREGAM Wolf

Catunaregam spinosa (Thunb.) Tiruv.

Synonyms	:	*Xeromphis spinosa* (Thunb.) Keay *Randia dumetorum* Lamk.
Characteristics	:	A shrub or small tree, armed with stout, axillary spines. Leaves opposite or sometimes in fascicles, obovate, tapering to the petiole at base. Flowers whitish, solitary or in pairs. Fruit a globose, yellow berry.
Habitat	:	Scrub jungle in sandy soil; not common.
Fl. & Fr	:	April to July.
Reference	:	FBI. 3:110; FUGP. 1:420; FMD. 158; FTN. 1, 2:3



DENTELLA Forst.

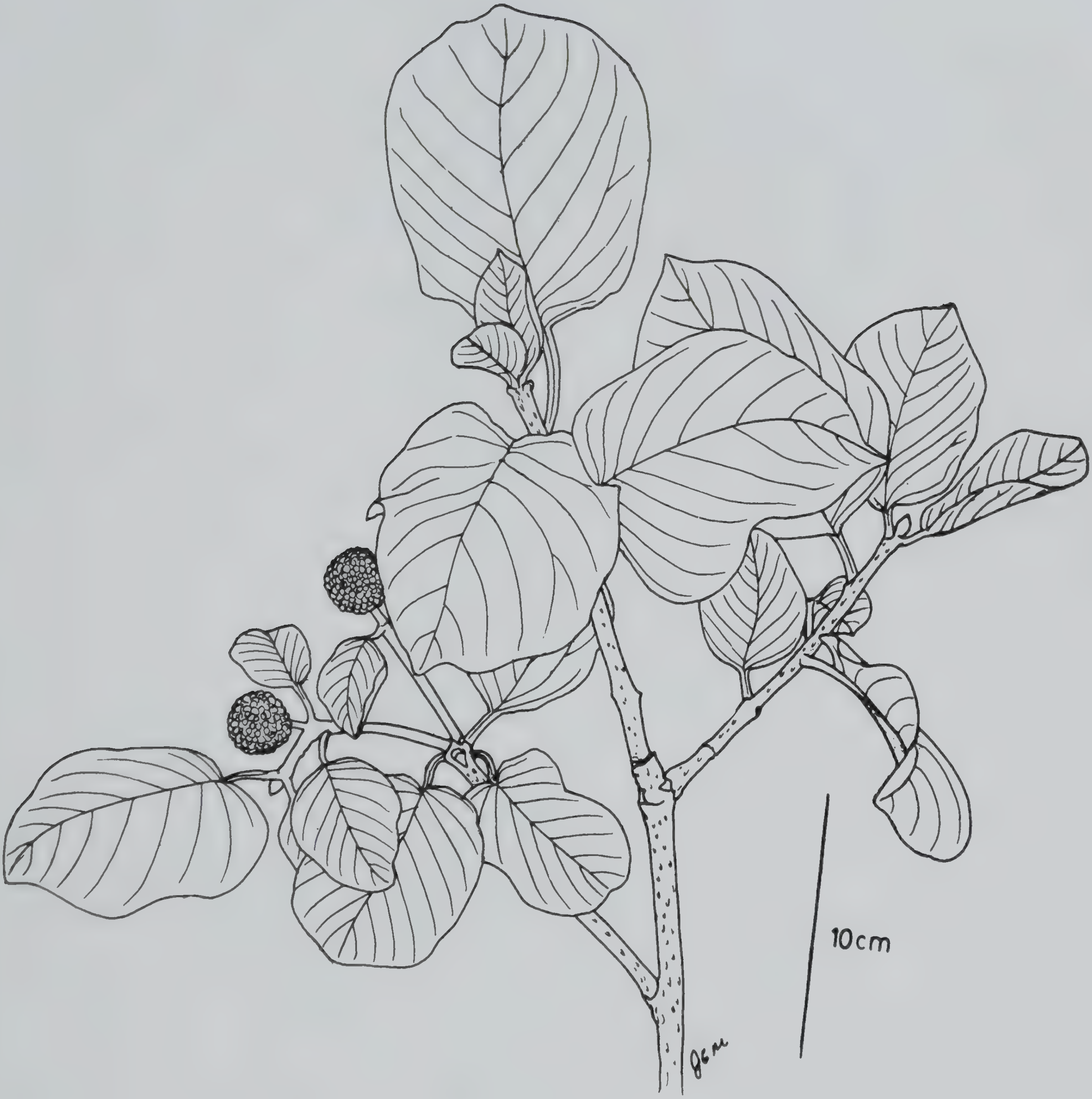
Dentella repens (L.) Forst.

Characteristics : A many-branched, prostrate, creeping herb, rooting at the nodes. Leaves 0.3 to 1 cm long, opposite, spoon-shaped; margins entire. Flowers white, solitary in leaf axils. Fruit a globose, indehiscent capsule, covered with scales. Seeds minute, many, brown.

Habitat : Open, moist areas; collected from bulldozed area.

Fl. & Fr : July to December.

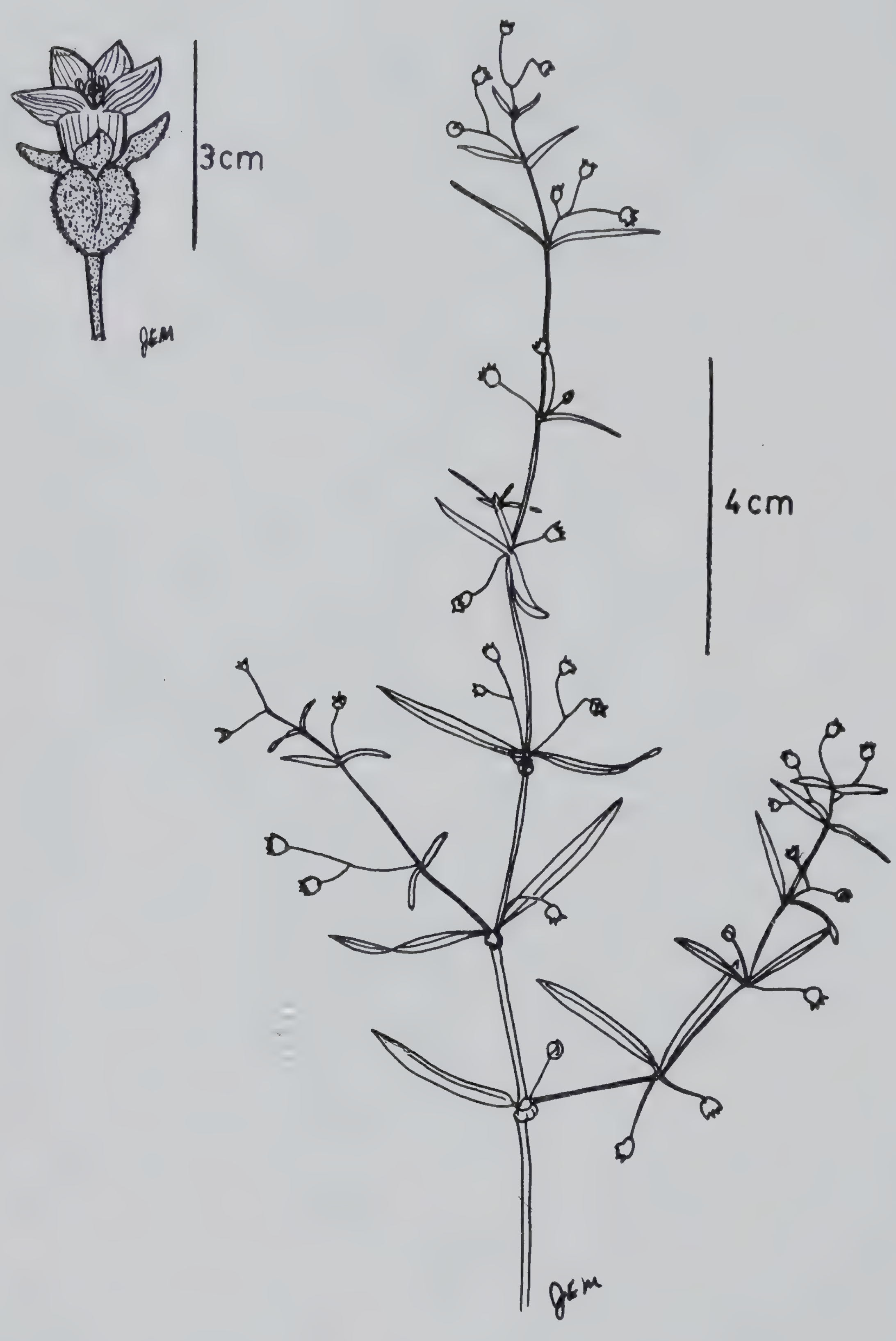
Reference : FBI. 3:42; FUGP. 1:410; FID. 188; FNER. 183



MITRAGYNA Korth.

Mitragyna parvifolia (Roxb.) Korth.

Synonym : *Stephegyne parvifolia* Korth.
Local name : Kadam
Characteristics : A large, deciduous tree. Leaves opposite, elliptic or rounded. Flowers whitish-yellow arranged in terminal, globose, scented heads. Fruits small capsules, crowded on a head.
Habitat : Common throughout the park in dry and moist sandy soil.
Fl. & Fr. : July to September.
Reference : FBI. 3:25; FUGP. 1:408; FD. 181; FID. 190; FNER. 185



OLDENLANDIA L.

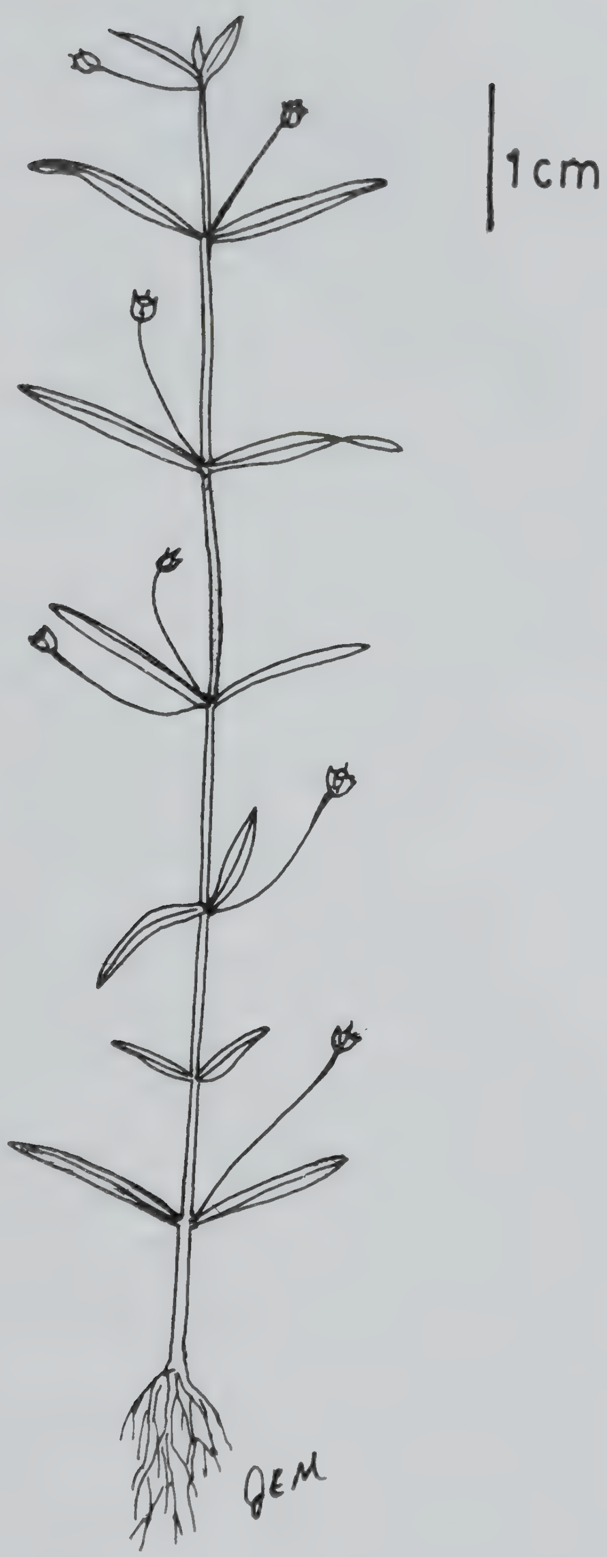
Oldenlandia corymbosa L.

Characteristics : An erect or prostrate herb. Leaves opposite, sessile, linear. Flowers white, 1 to 3 arranged on a common, axillary peduncle; stamens and style do not exceed the petals. Fruit a capsule with a flat top.

Habitat : Common in open, moist areas.

Fl. & Fr. : September to November.

Reference : FBI. 3:64; FUGP. 1:413; FD. 180; FNER. 186



Oldenlandia pseudocorymbosa (Bakh. f.) C. R. Babu

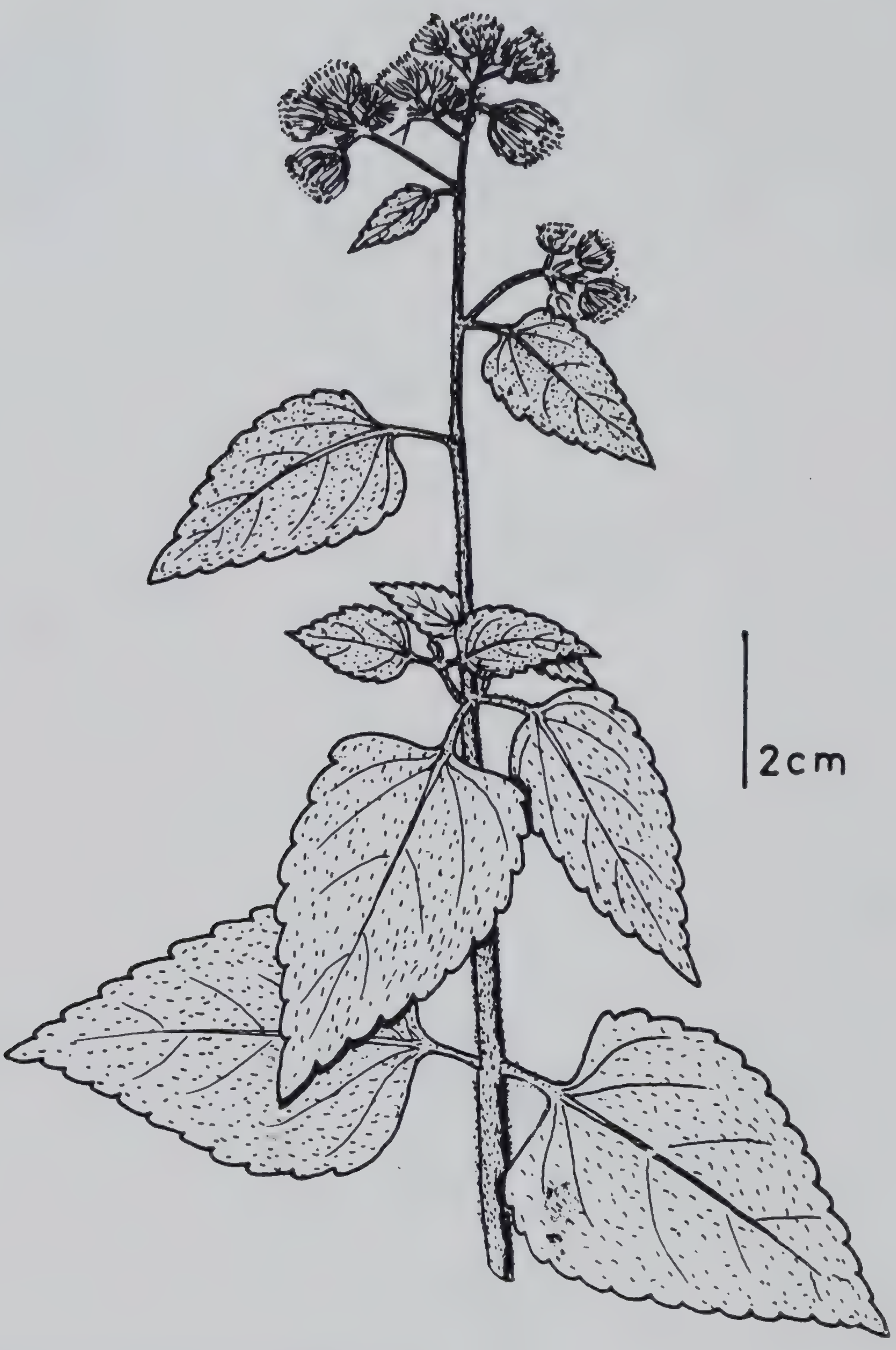
Synonym : *Hedyotis pseudocorymbosa* Bakh. f.

Characteristics : A prostrate or ascending, annual herb with slender stems. Leaves opposite, linear- narrow. Flowers white, 1 to 3 arranged in axillary cymes on slender peduncles and pedicels; stamens and styles exserted from petals. Fruits ovoid, narrow at apex. Seeds minute, many, brown.

Habitat : Common in moist soil in open areas.

Fl. & Fr. : September to December.

Reference : FJ. 2:286; HFD. 227



35. ASTERACEAE (COMPOSITAE)

AGERATUM L.

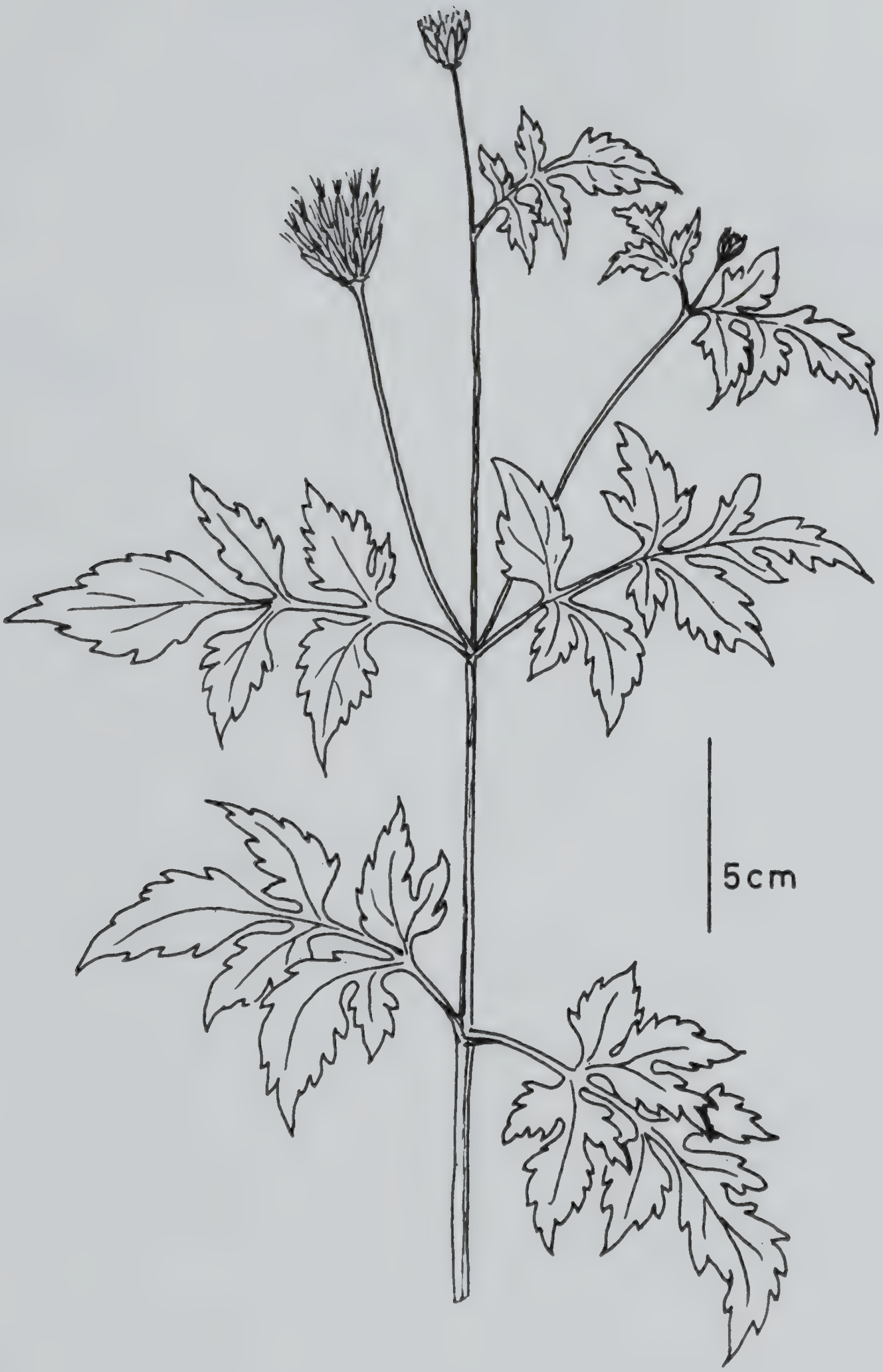
Ageratum conyzoides L.

Characteristics : An erect, branched, hairy herb, usually with purplish stems. Leaves opposite below but alternate above, broadly ovate, toothed at margin. Flower heads violet, arranged in terminal corymbs. Achenes black, with white pappus.

Habitat : Common along roadsides in wet soil.

Fl. & Fr. : February to June.

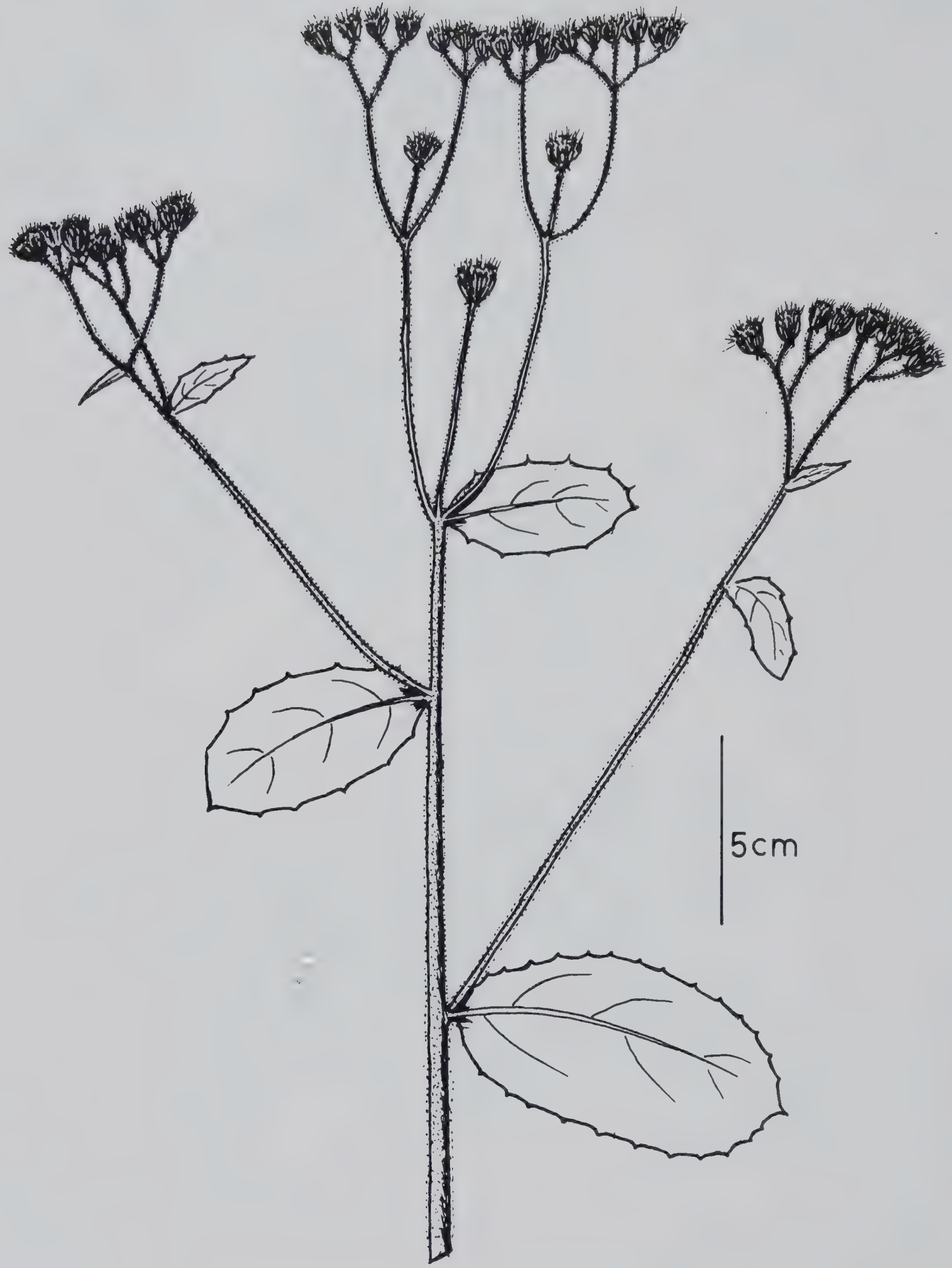
Reference : FBI. 3:243; FUGP. 1:443; FD. 190; FID. 192; FNER. 194



BIDENS L.

Bidens biternata (Lour.) Merr. & Sherff

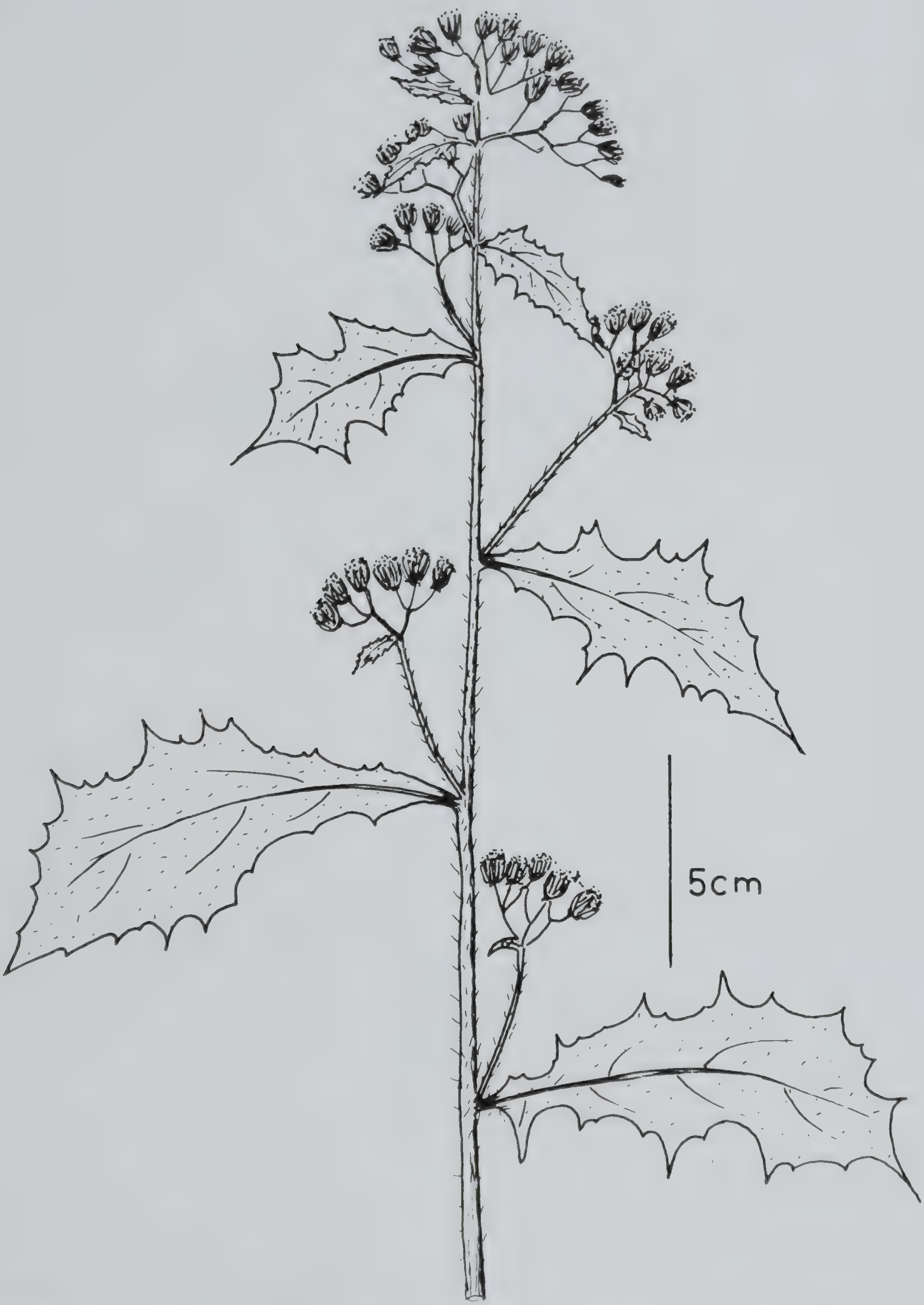
Synonym	:	*B. pilosa* auct. non L.
Characteristics	:	An erect, annual herb with 4-angled, glabrous to sparsely hairy stems. Branches and leaves opposite. Leaves usually 5-foliolate. Flower heads yellow, on long axillary or terminal peduncles. Achenes long, 4-angled, black, with 2 to 4 short, stout awns.
Habitat	:	Common after rainy season in moist humus soil.
Fl. & Fr.	:	September to December.
Reference	:	FBI. 3:309; FUGP. 1:472; FD. 197; FID. 193; FNER. 195



BLUMEA DC.

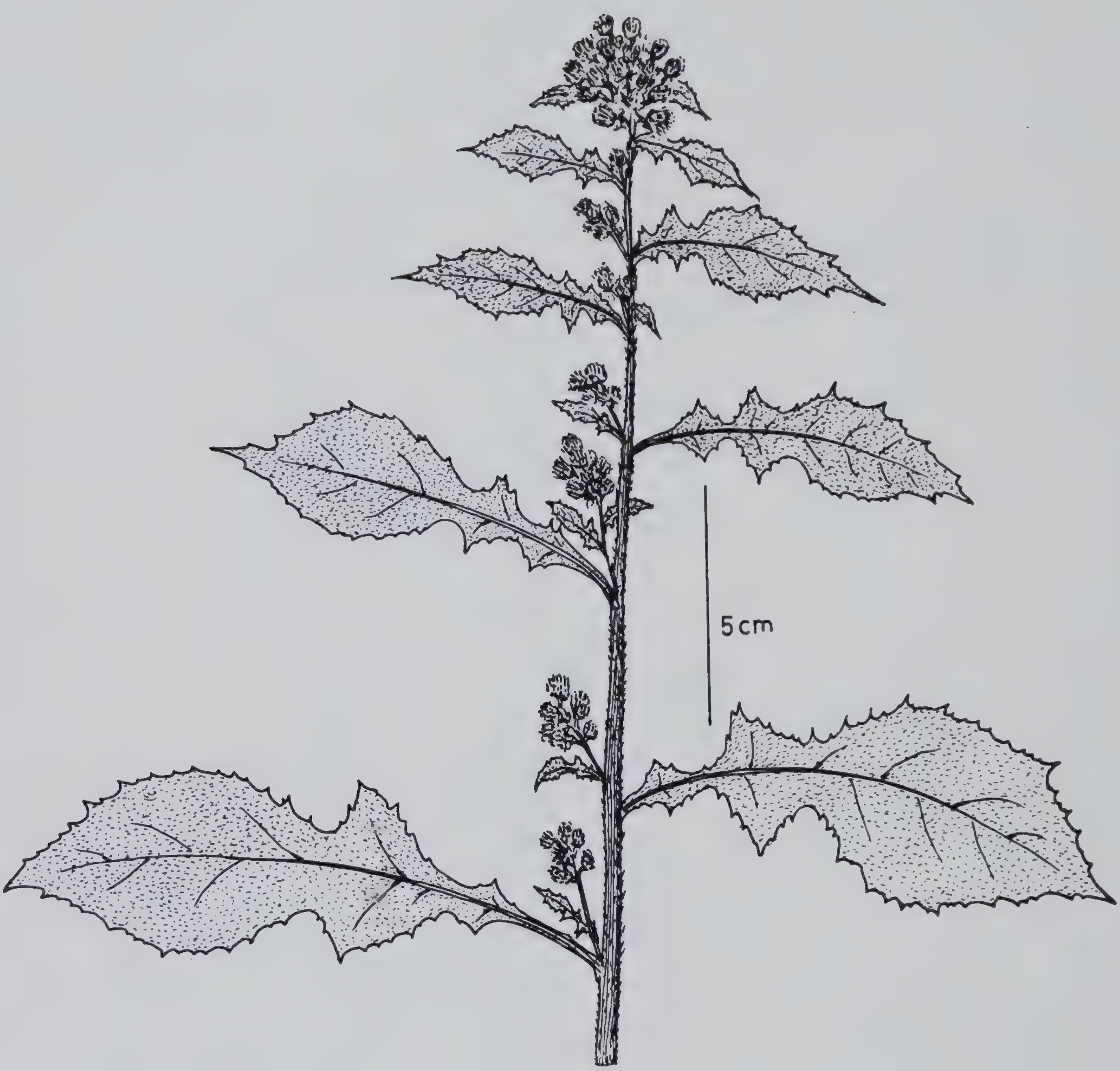
Blumea eriantha DC.

Characteristics	:	A tall, erect, hairy herb. Leaves obovate, toothed at margin; basal leaves larger and petiolate, upper ones smaller and sessile. Flower heads 5-8 mm across, arranged in cyme on a long, hairy peduncle. Achenes minute.
Habitat	:	Along the dykes; not common.
Fl. & Fr.	:	December to March.
Reference	:	FBI. 3:266; FUGP. 1:452



Blumea laciniata (Roxb.) DC.

Characteristics	:	A stout, erect herb with small, white hairs throughout. Leaves broad, usually subpinnatifid, hairy on surfaces, sharply toothed at margin; basal leaves larger than upper ones. Flower heads yellow, arranged in corymbs. Achenes ribbed.
Habitat	:	Along roadsides and bunds of aquatic area; not common.
Fl. & Fr.	:	December to March.
Reference	:	FBI. 3:264; FUGP. 1:454; FD. 196; FNER. 198



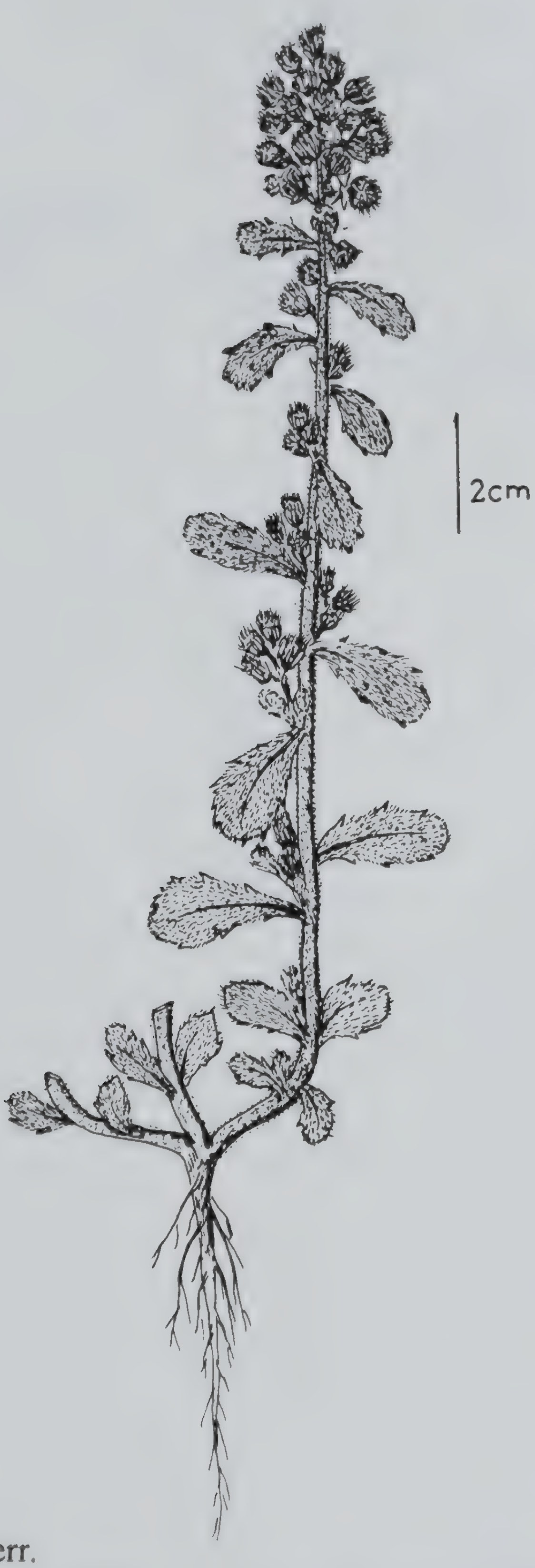
Blumea membranacea DC.

Characteristics : An erect herb with soft, glandular hairs throughout. Leaves pinnatifid, obovate, toothed at margin; basal leaves larger and petiolate but upper ones smaller and sessile. Flower heads yellow, arranged in branched panicles. Achenes with 8 to 10 ribs.

Habitat : Found along roadsides and bunds of aquatic areas.

Fl. & Fr. : December to April.

Reference : FBI. 3:265; FUGP. 1:455



Blumea mollis (D. Don) Merr.

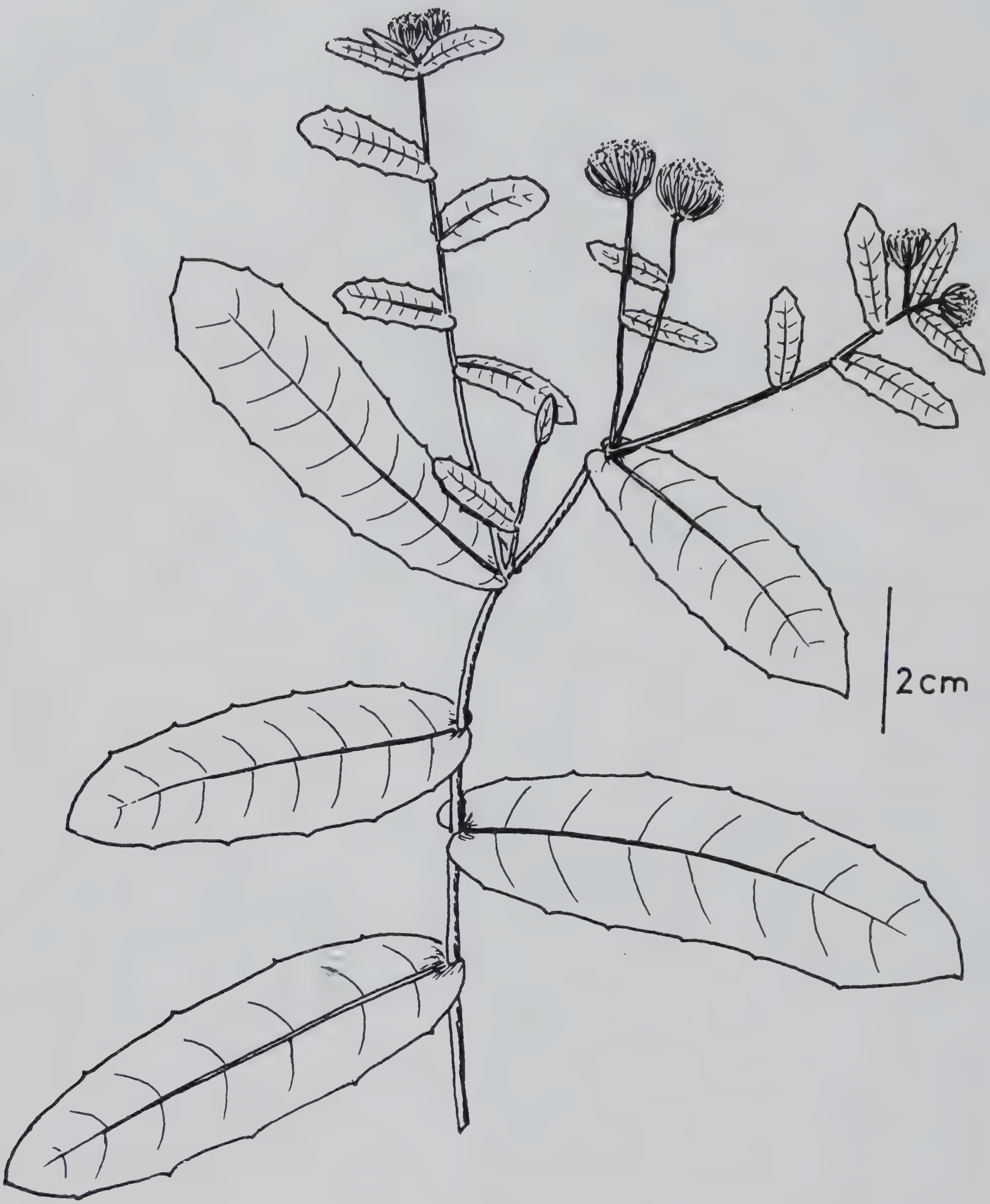
Synonym : *B. wightiana* DC.

Characteristics : A deep-rooted, woolly herb, branching from the base. Leaves obovate, narrow at base, covered with soft hairs; margin toothed. Flower heads purple, numerous, arranged in axillary or terminal, dense spikes or panicles. Achenes angled, not ribbed.

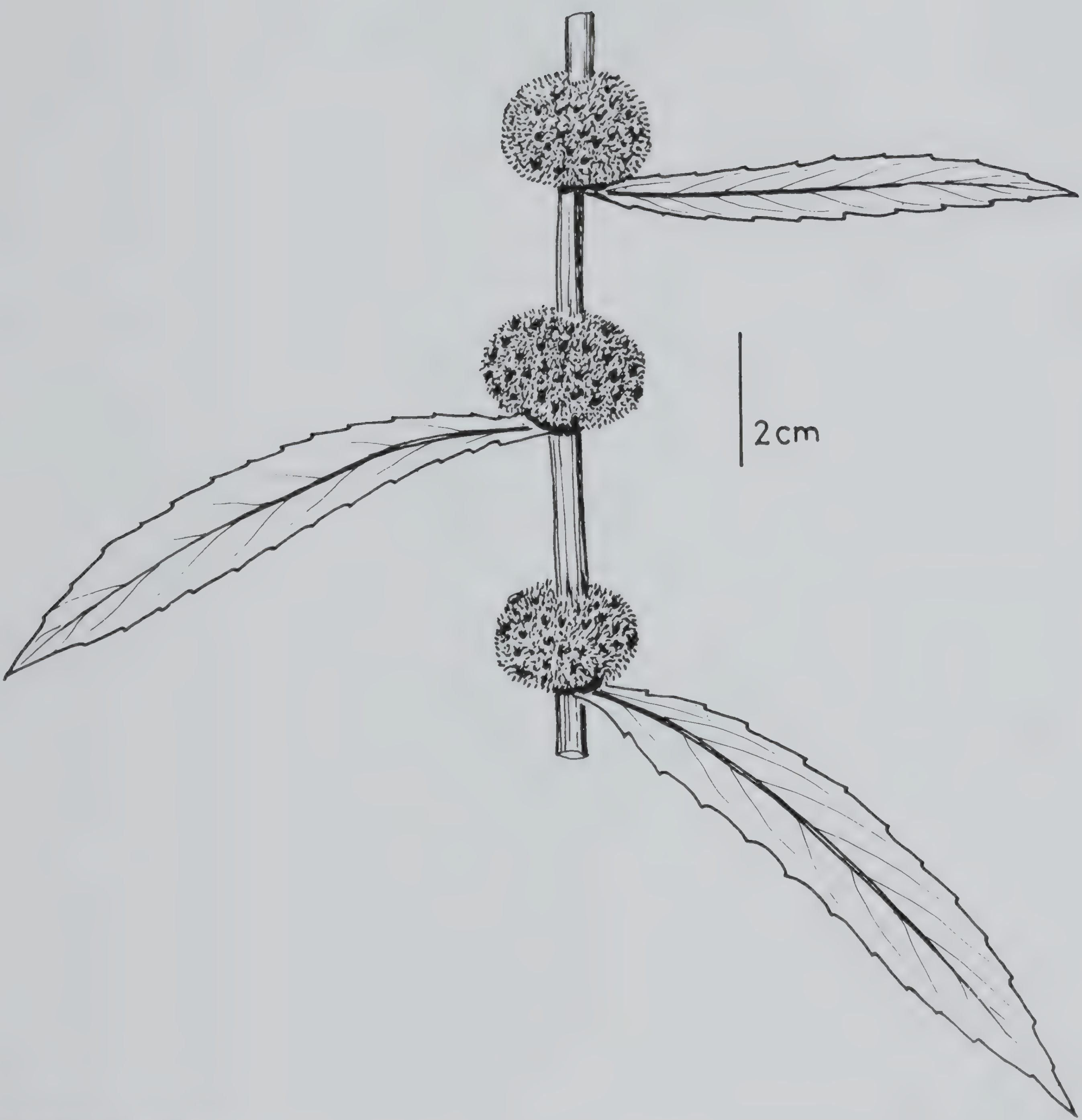
Habitat : Dry, open areas; not common.

Fl. & Fr. : February to May.

Reference : FBI. 3:261; FUGP. 1:453; FD. 195; FNER. 199.

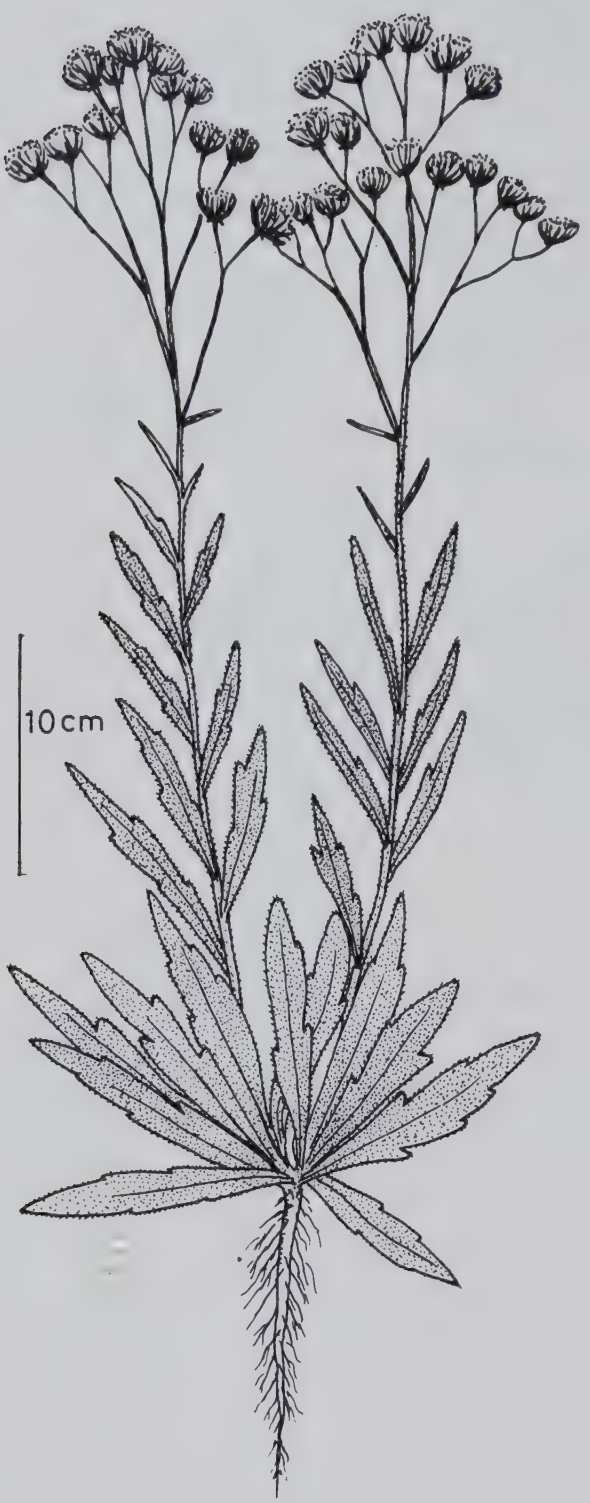


Blumea obliqua (L.) Druce
Synonym : *B. amplectens* DC.
Characteristics : A deep-rooted, perennial, branched herb. Young branches and leaves covered with soft hairs. Leaves sessile, lanceolate to oblong; margin toothed or entire. Flower heads yellow, solitary in leaf axils or terminal. Achenes without ribs; pappus pinkish.
Habitat : Common in dry, sandy soil.
Fl. & Fr. : February to July.
Reference : FBI. 3:260; FUGP. 1:451; FD. 195; FID. 195



CAESULIA Roxb.
Caesulia axillaris Roxb.

Characteristics	:	An erect or sub-erect, succulent herb, branching from the base. Stem usually red shaded. Leaves 4 to 10 cm long, lanceolate, tapering to both ends, auriculate at base, distantly and minutely toothed at margin. Flowers pinkish, arranged on globose heads in leaf axils. Achenes flat with wings on sides.
Habitat	:	Small ditches seasonally inundated with shallow water.
Fl. & Fr.	:	August to September.
Reference	:	FBI. 3:291; FUGP. 1:462; FD. 192; FID. 195; FNER. 199



CONYZA Less.

Conyza bonariensis (L.) Cronq.

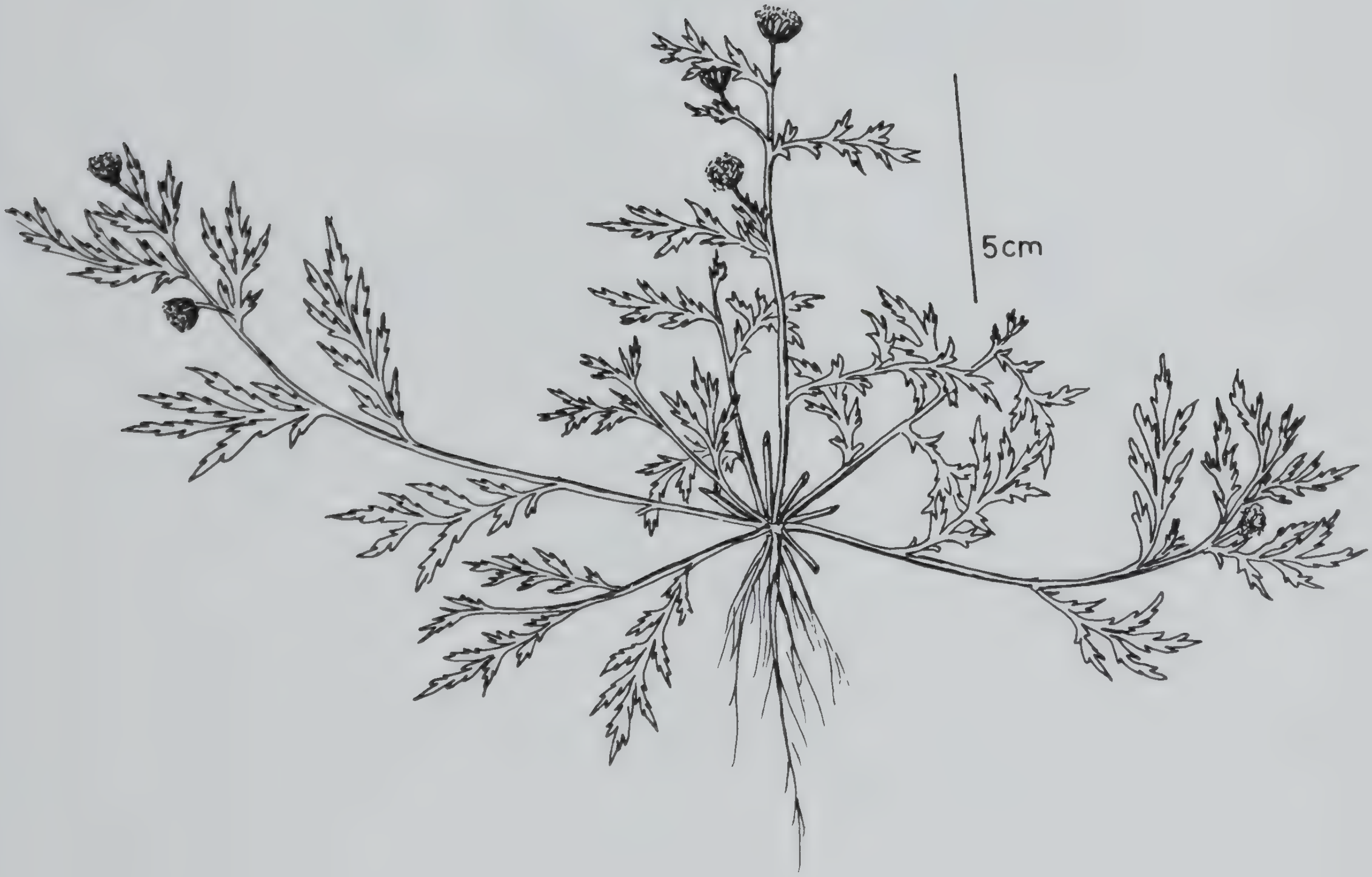
Synonyms : *Erigeron bonariensis* L.
E. linifolius Willd.

Characteristics : An erect, minutely hairy herb with striate stem. Leaves crowded on the stem, 4 to 10 cm long, linear-narrow; margin entire or toothed. Flower heads in branched panicles; disk flowers pale yellow, ray flowers whitish. Achenes flat, with dirty-white pappus.

Habitat : Roadsides and open areas.

Fl. & Fr. : June to November.

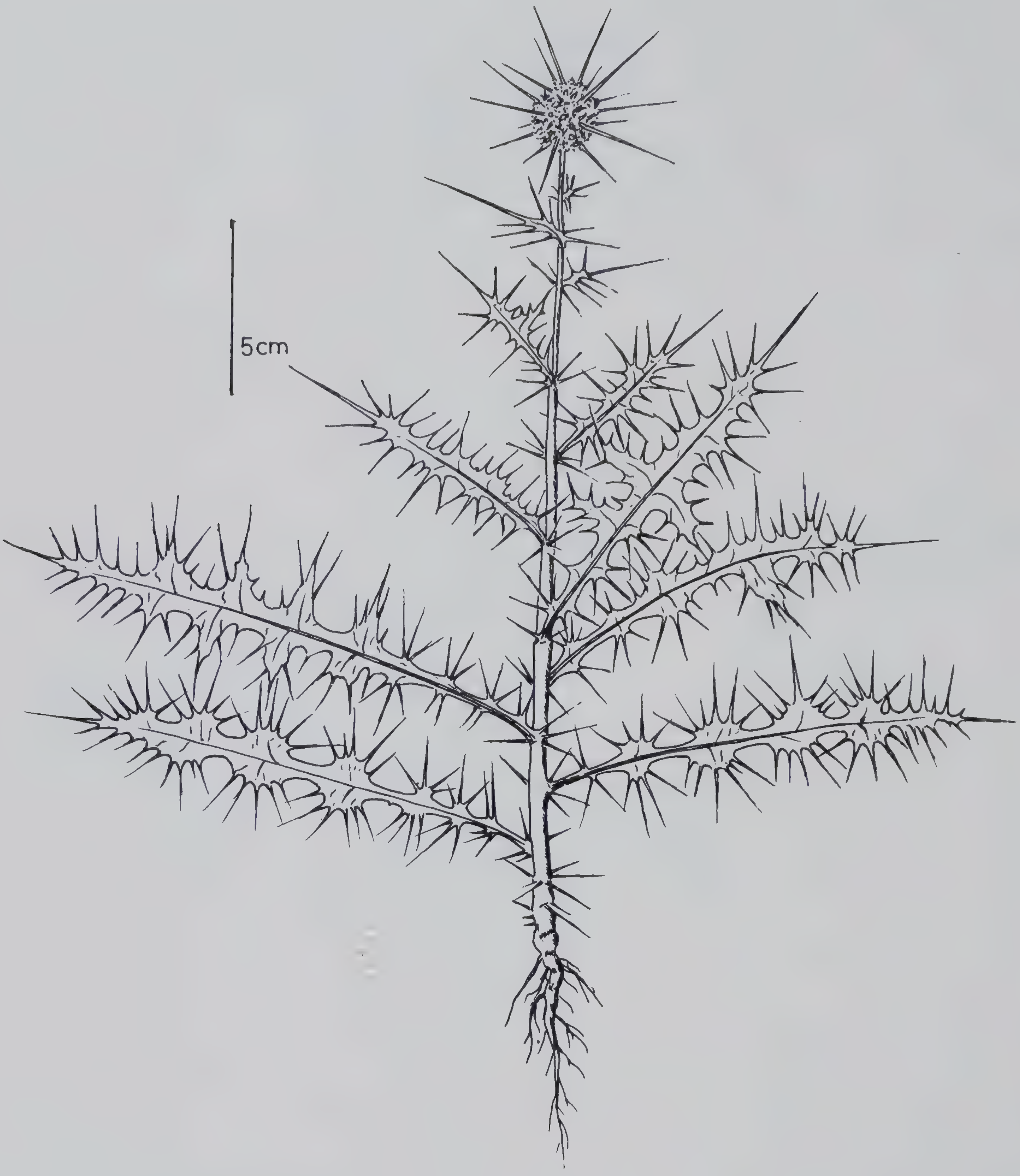
Reference : FBI. 3:254; FD. 192; FNER. 204; FTN. 1, 2:36



COTULA L.

Cotula anthemoides L.

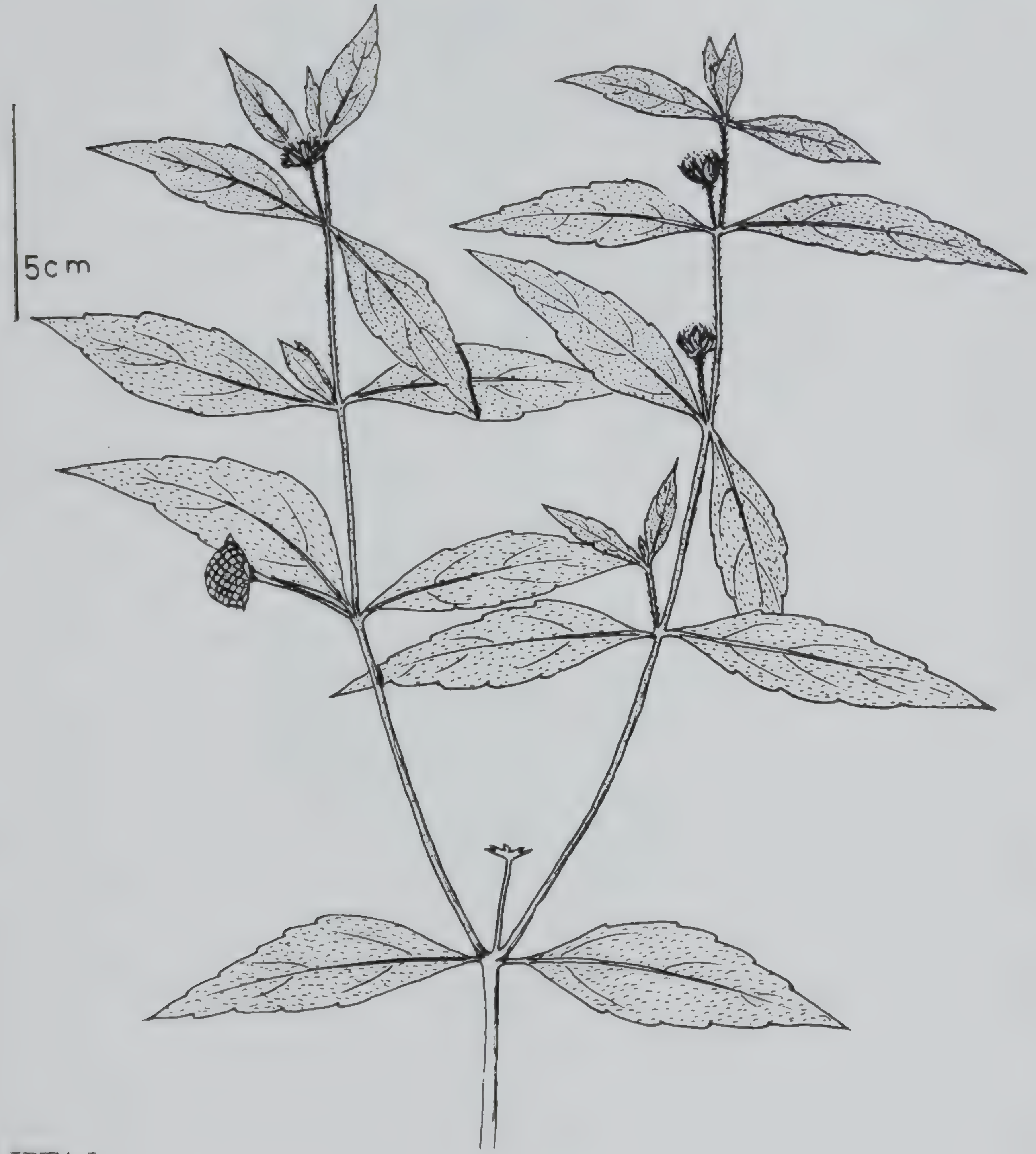
Characteristics	:	A many-branched, prostrate or diffuse herb with glabrous stem. Leaves pinnately divided into thin, linear segments. Flower heads pale yellow, solitary. Achenes angled, not winged.
Habitat	:	Common in open, moist areas.
Fl. & Fr.	:	December to March.
Reference	:	FBI. 3:316; FUGP. 1:476



ECHINOPS L.

Echinops echinatus Roxb.

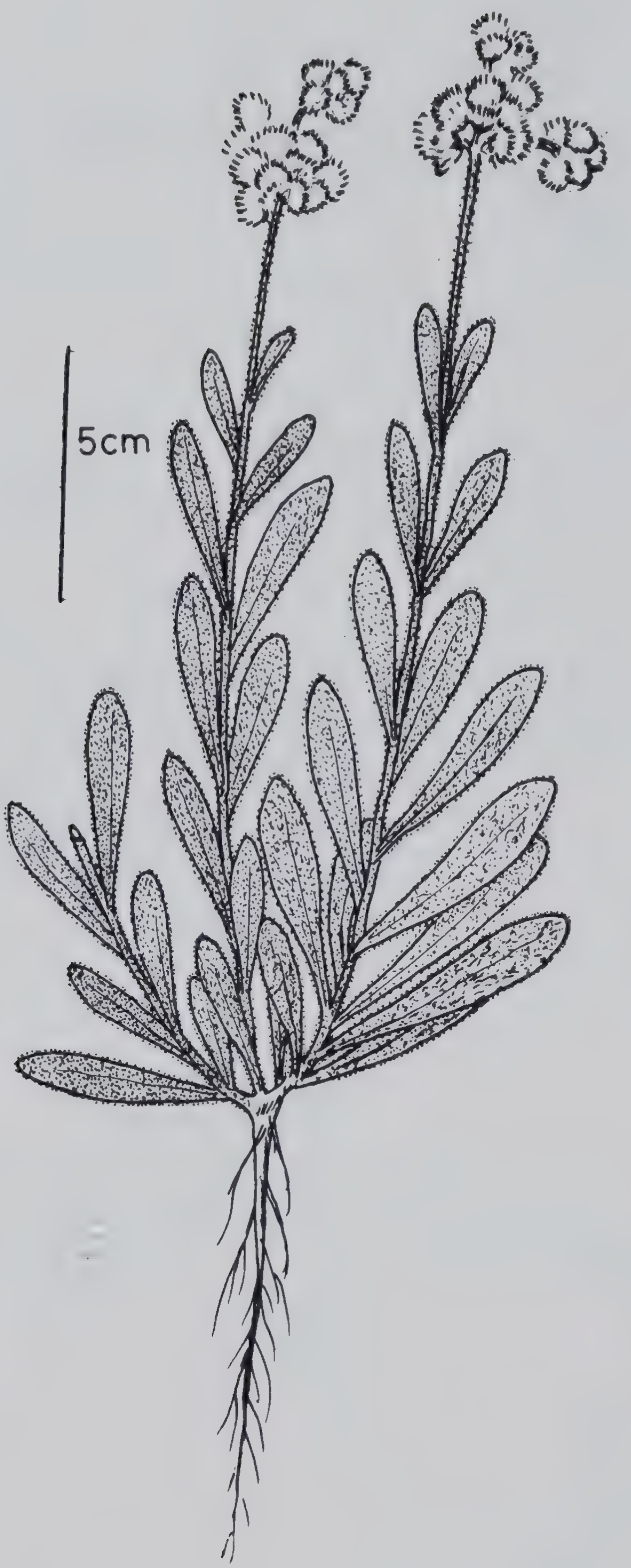
Characteristics	:	A many-branched, spiny herb. Leaves pinnatifid with lobes ending in sharp spines. Flower heads bluish to white, arranged in a globose spiny inflorescence. Achenes densely silky; pappus yellow.
Habitat	:	Occasionally seen in dry, sandy soil.
Fl. & Fr.	:	December to April.
Reference	:	FBI. 3:358; FUGP. 1:480; FD. 200; FID. 198; FNER. 202



ECLIPTA L.

Eclipta prostrata (L.) L.

Synonyms : *E. alba* (L.) Hassk.
E. erecta L.
Local name : Cucur bhangra, Kara bhangra
Characteristics : An erect to prostrate herb, minutely hairy throughout. Leaves 1 to 6 cm long, opposite, variable in size and shape, usually distantly toothed at margin. Flower heads white, solitary or in pairs. Achenes without pappus.
Habitat : Open areas with wet soil; commonly seen along the margins of aquatic area.
Fl. & Fr. : Almost throughout the year.
Reference : FBI. 3:304; FUGP. 1:468; FD. 197; FID. 198; FNER. 202



GNAPHALIUM L.

Gnaphalium luteo-album L. subsp. **affine** (D. Don) Koster

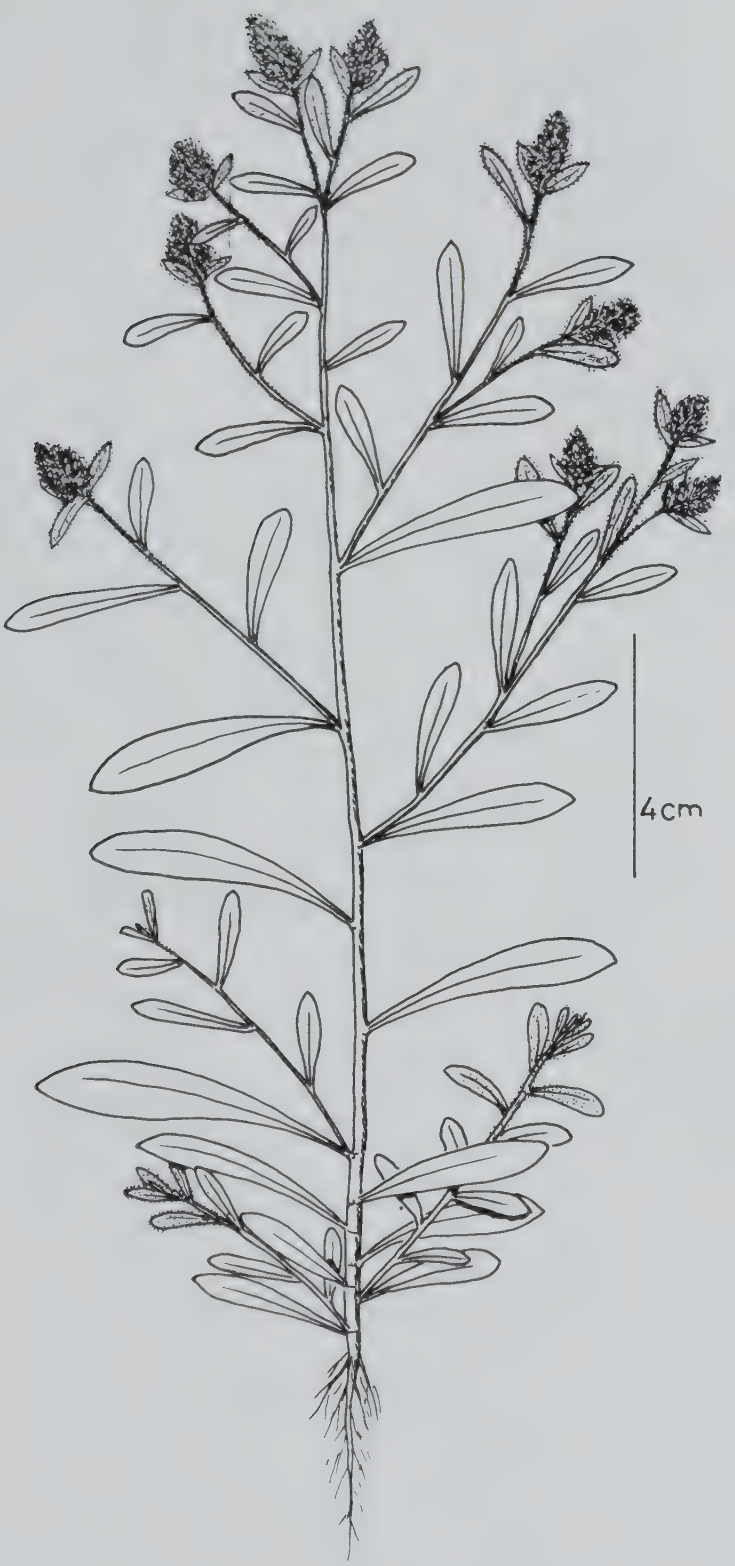
Synonym : *G. luteo-album* L. var. *multiceps* Hook. f.

Characteristics : An erect or ascending, densely woolly herb branching from the base. Leaves sessile; lower ones spoon-shaped; upper ones linear. Flower heads yellow, arranged in terminal, leafless clusters. Achenes brown, oblong.

Habitat : Commonly found in wet soil of dried up monsoonal pools.

Fl. & Fr. : November to March.

Reference : FBI. 3:288; FUGP. 1:460; FD. 194; FNER. 208



Gnaphalium polycaulon Pers.

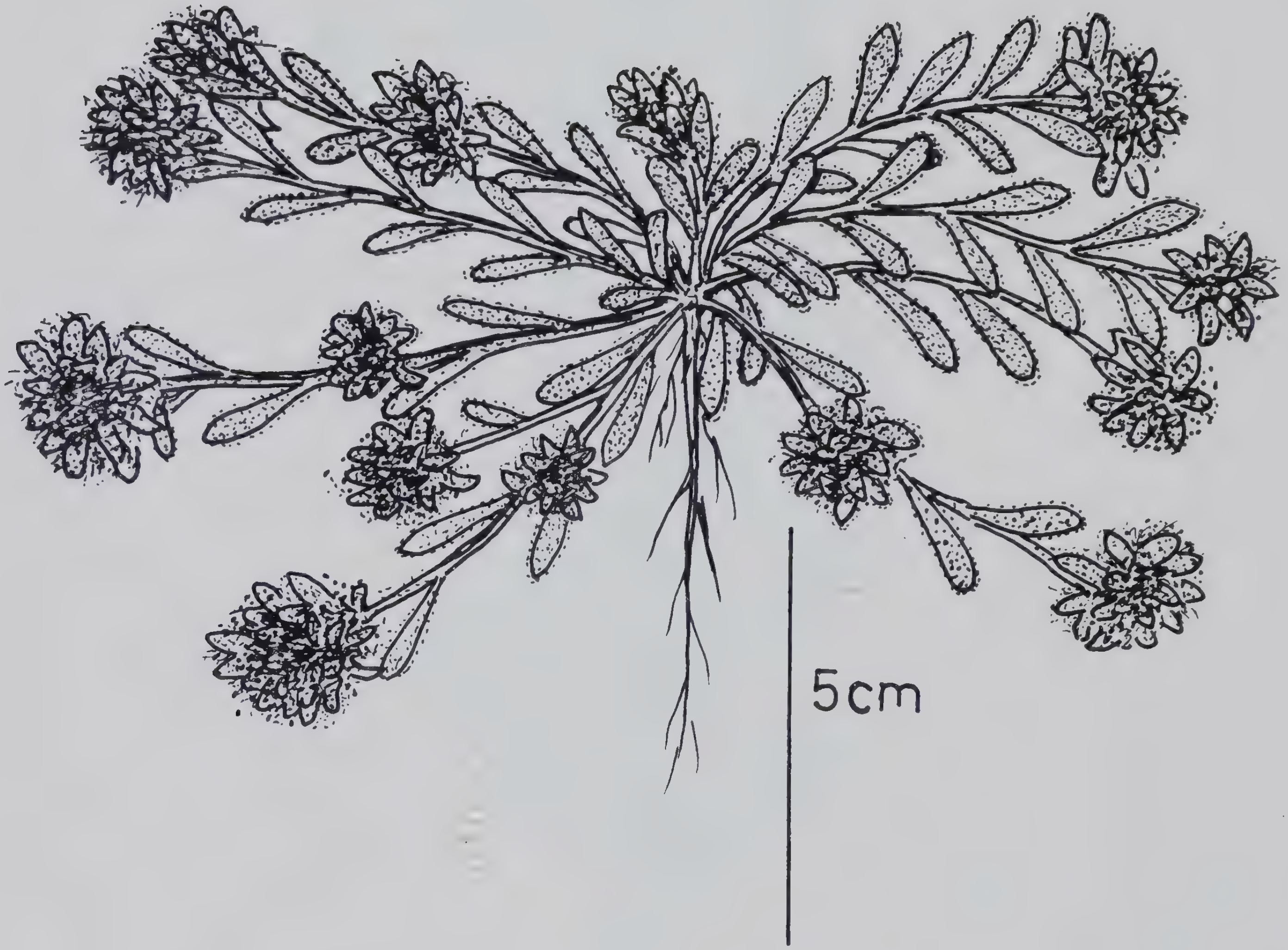
Synonym : *G. indicum* auct. non L.

Characteristics : A slender, woolly herb, branching from the base. Leaves 5 to 6 cm long, linear to spoon-shaped; basal ones petiolate. Flower heads arranged in terminal, branched spikes or in clusters from the upper leaf axils. Achenes egg-shaped; pappus hairs free.

Habitat : Commonly found during winter throughout the uplands; usually in moist soil.

Fl. & Fr. : December to April.

Reference : FBI. 3:289; FUGP 1:461; FD. 194; FID. 201; FNER. 207



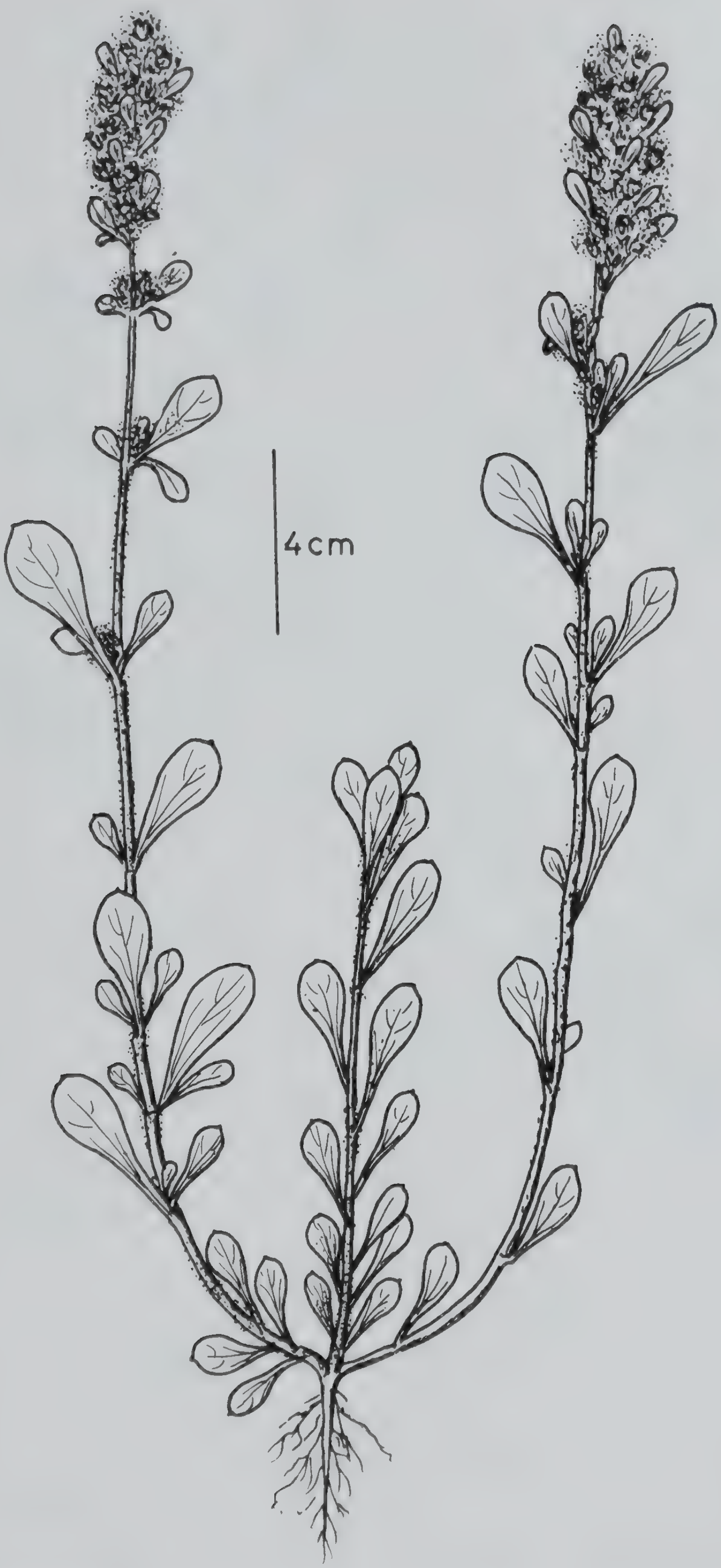
Gnaphalium pulvinatum Del.

Characteristics : A spreading, prostrate, woolly herb, branching from the base. Leaves 0.5 to 1.5 cm long, spoon-shaped, narrowed to the base; petioles short. Flower heads yellow, arranged in terminal or axillary, rounded, leafy clusters. Achenes oblong.

Habitat : Common in wet open areas and dried, monsoonal pools; after winter.

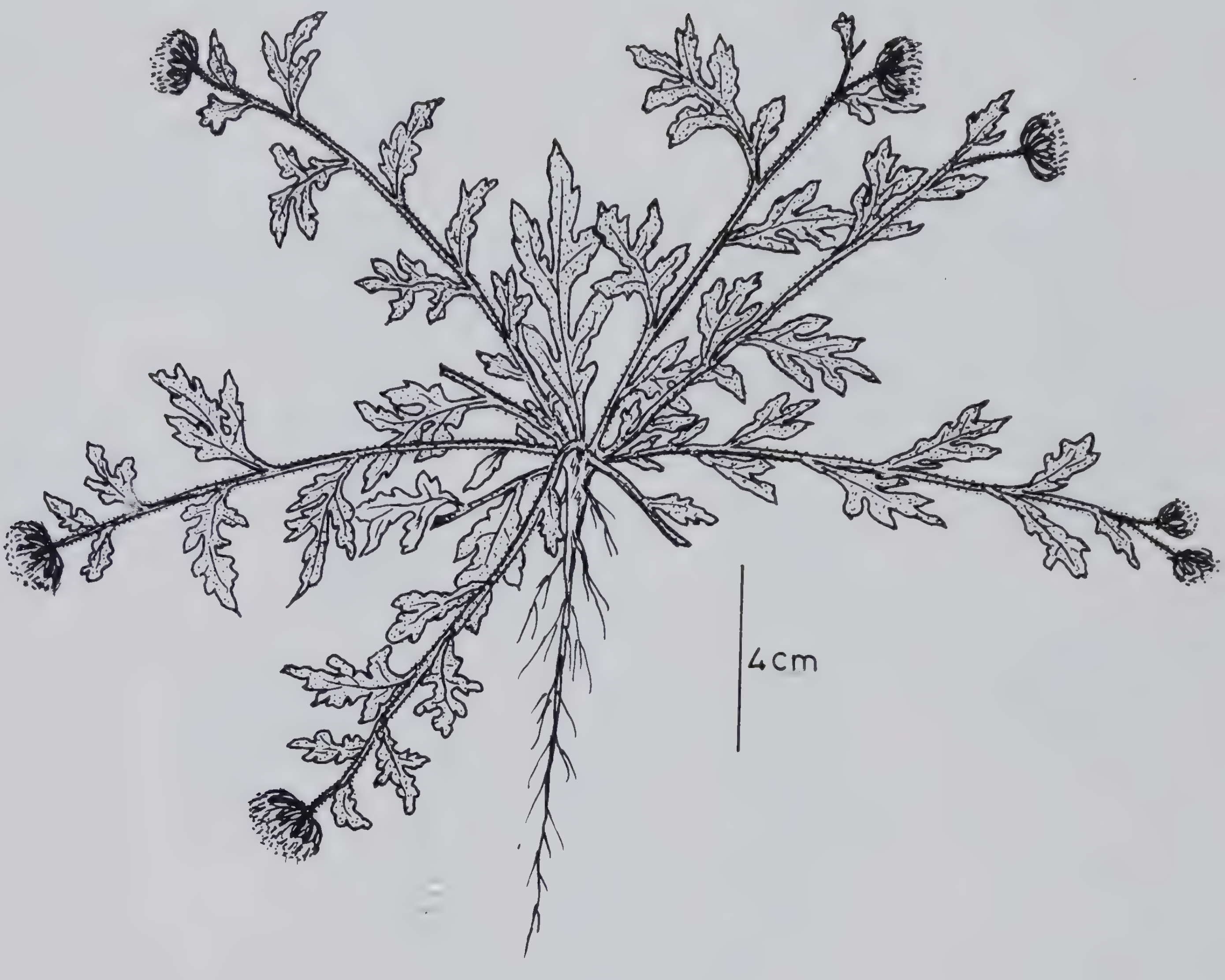
Fl. & Fr. : February to May.

Reference : FBI. 3:289; FUGP. 1:462; FID. 201; FNER. 209



Gnaphalium purpureum L.

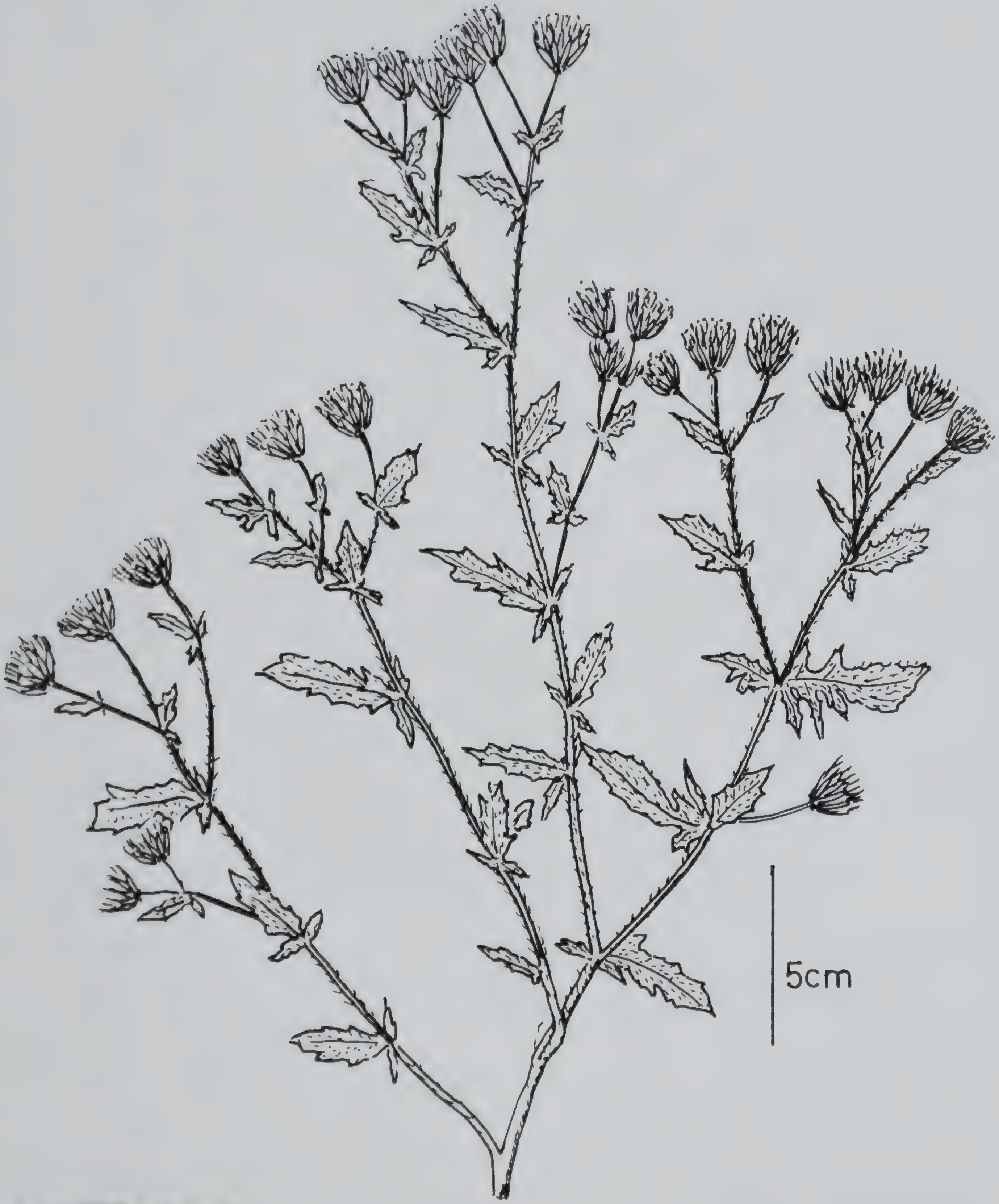
Characteristics	:	An erect, hairy herb, branching from the base. Leaves 6 to 10 cm long, spoon-shaped, broadly rounded at apex. Flower heads pale brown, arranged in axillary clusters. Achenes oblong; pappus hairs united at the base.
Habitat	:	Moist shady areas.
Fl. & Fr.	:	February to April.
Reference	:	FBI. 3:289; FUGP. 1:462; FID. 202



GRANGEA Adans.

Grangea maderaspatana (L.) Poir.

Characteristics	:	A prostrate, minutely hairy, annual herb, branching from the base. Leaves pinnatifid, lobes toothed. Flower heads yellow, solitary in leaf axils. Achenes glandular, with cupular pappus.
Habitat	:	Roadsides and open areas.
Fl. & Fr.	:	March to May.
Reference	:	FBI. 3:247; FUGP. 1:446; FD. 191; FNER. 209



LAGGERA Sch.-Bip.

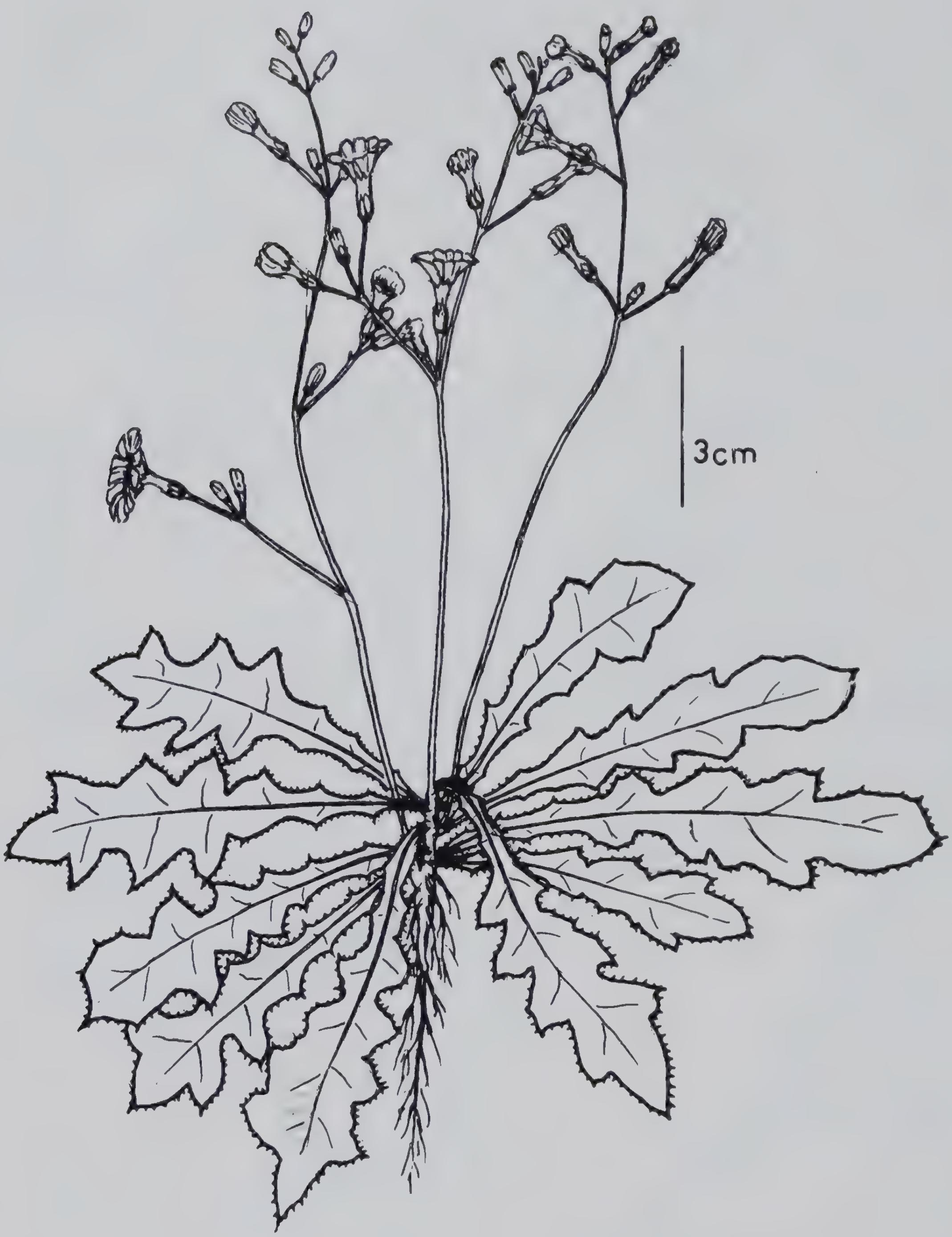
Laggera aurita (Willd.) Sch.-Bip. ex Cl.

Characteristics : An erect, stout, hairy, perennial herb. Leaves sessile to slightly petiolate; margin entire, pinnatifid or toothed. Flowers pinkish, arranged in terminal, paniculate corymbs. Achenes hairy.

Habitat : Along roadsides and in dry, open areas.

Fl. & Fr. : June to August.

Reference : FBI. 3:271; FUGP. 1:457; FD. 196



LAUNAEA Cass.

Launaea procumbens (Roxb.) Ramayya & Rajagopal

Synonyms : *L. nudicaulis* Hook. f.
L. fallax (Jaub. & Spach.) O. Kuntze

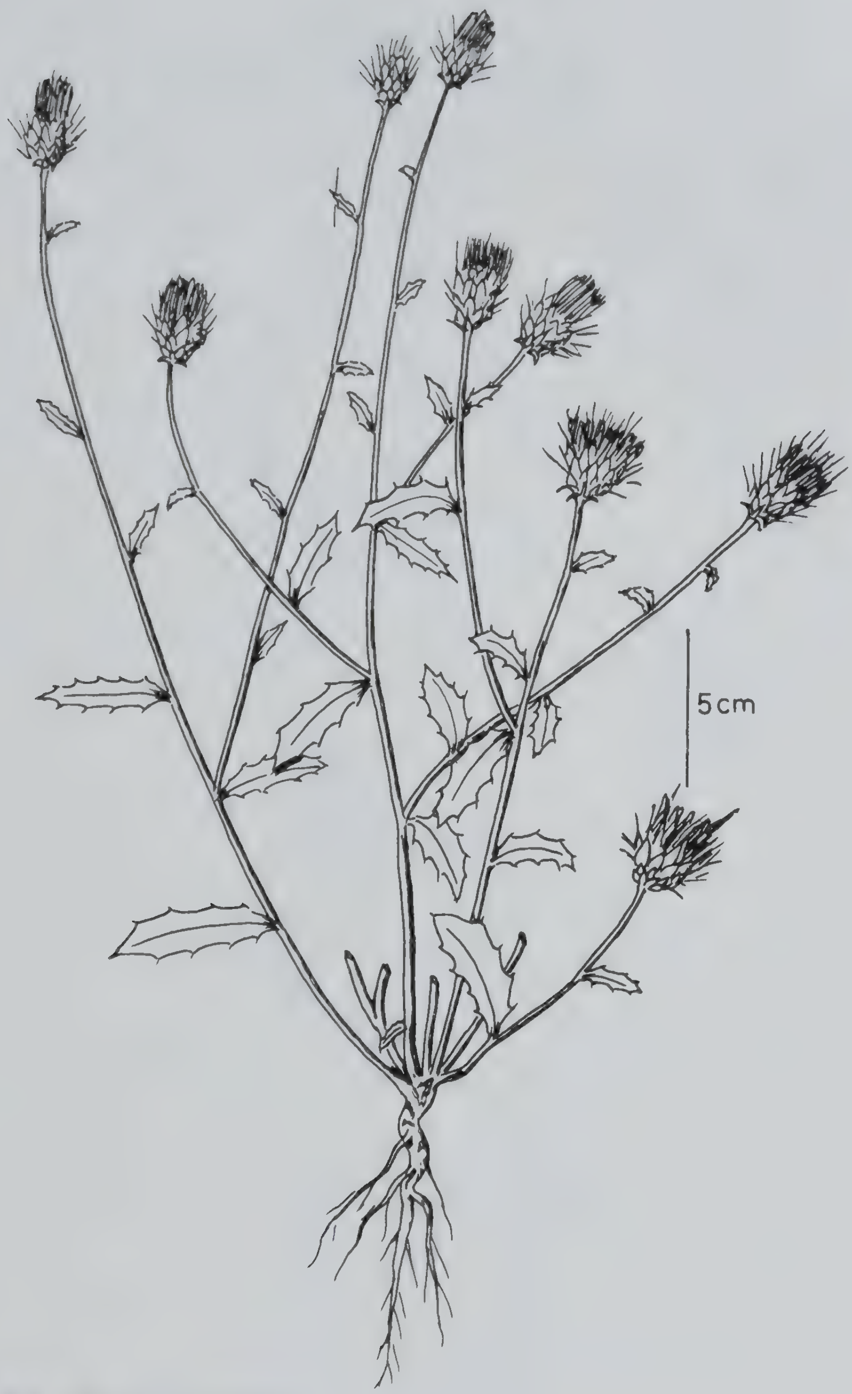
Local name : Gobi

Characteristics : A glabrous herb with several flowering stems arising from the base. Leaves sessile, pinnatifid, minutely toothed, crowded at the base; teeth usually white; upper leaves (if present) smaller than basal ones. Flower heads bright yellow, arranged along the flowering stems on short pedicels. Achenes black, with white pappus of sub-equal hairs.

Habitat : Roadsides and open sandy areas.

Fl. & Fr. : July to March.

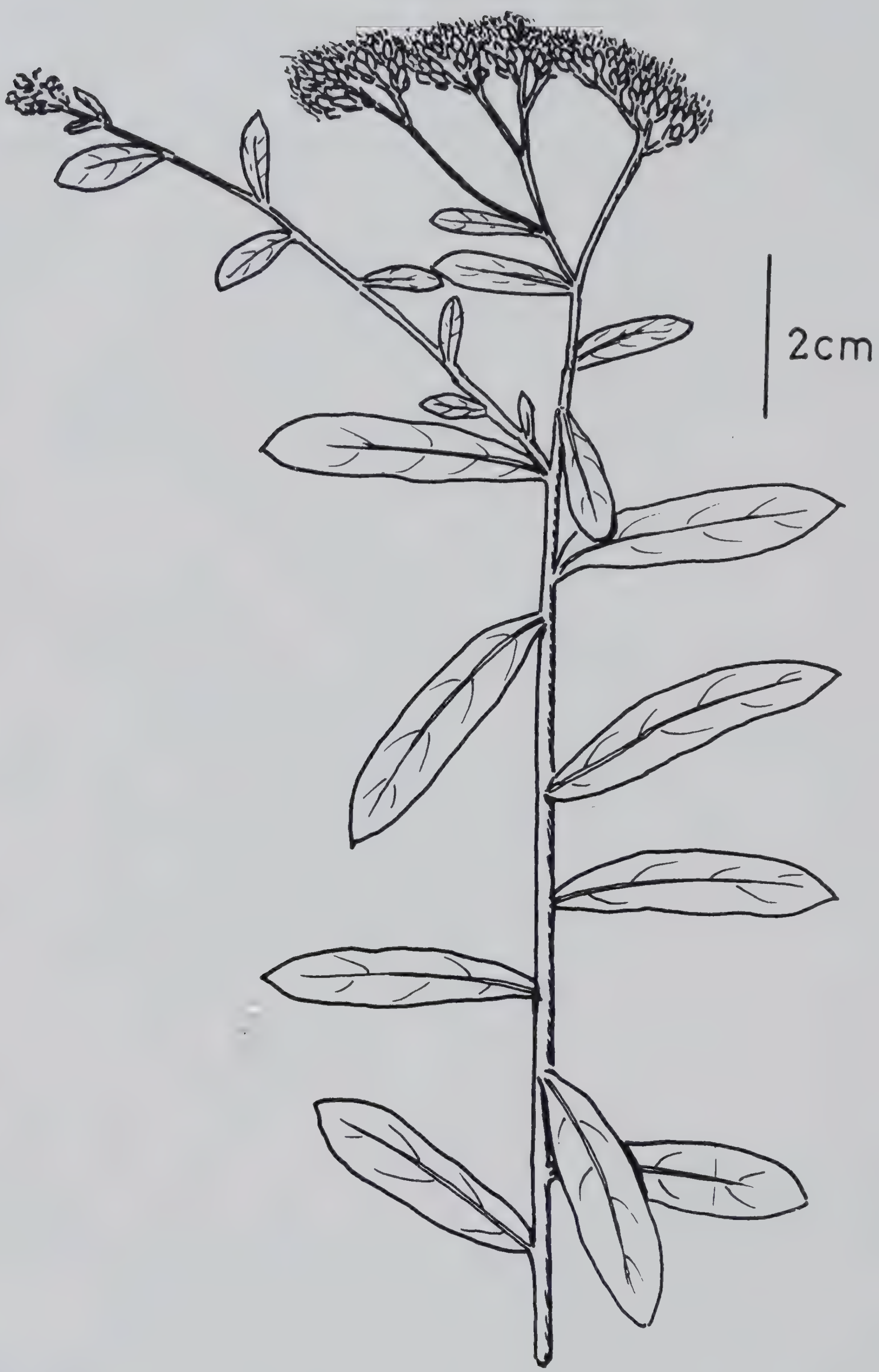
Reference : FBI. 3:416; FUGP. 1:494; FD. 189; FID. 204



OLIGOCHAETA (DC.) C. Koeh.

Oligochaeta ramosa (Roxb.) Wagen.

Synonyms	:	*Volutarella divaricata* Benth. & Hook. f. *V. ramosa* (Roxb.) Santapau *Amberboa ramosa* (Roxb.) Jafri
Characteristics	:	A perennial branching herb with glabrous to sparsely hairy stems. Leaves sessile, variable, usually pinnatifid with an enlarged terminal lobe and smaller lateral lobes, dentate at margin; upper leaves smaller than lower ones. Flower heads pale-purple, solitary on a grooved peduncle; involucral bracts spinescent. Achenes angled, pitted, with unequal silvery-brown pappus hairs.
Habitat	:	Dry, sandy soil; not common.
Fl. & Fr.	:	October to March.
Reference	:	FBI. 3:383; FUGP. 1:486; FD. 202; FID. 206; FNER. 194



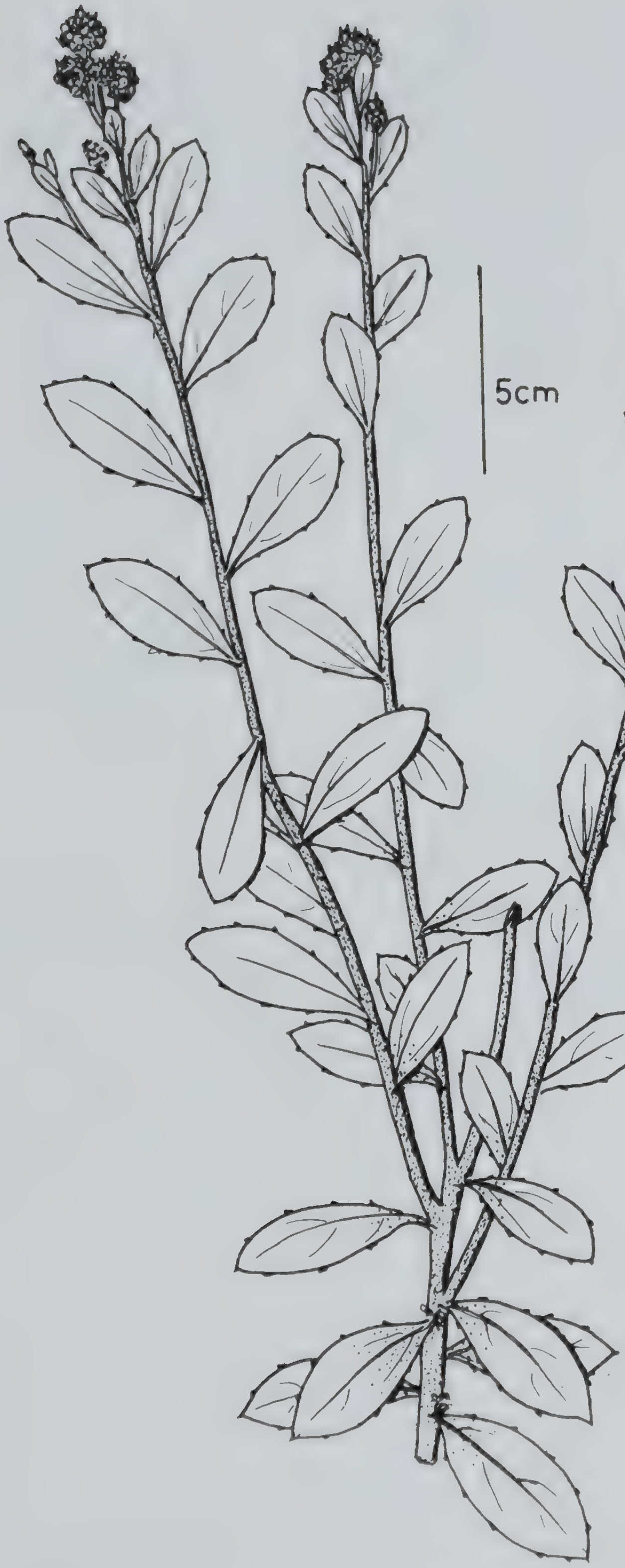
PLUCHEA Cass.
Pluchea lanceolata (DC.) Cl.

Characteristics : An erect, woody, perennial undershrub. Leaves 2 to 6 cm long, sessile, oblong, narrow at base. Flower heads purplish, arranged in corymbs. Achenes minute.

Habitat : Dry, sandy areas; not common.

Fl. & Fr. : March to June.

Reference : FBI. 3:272; FUGP. 1:458; FD. 196; FID. 207; FNER. 214



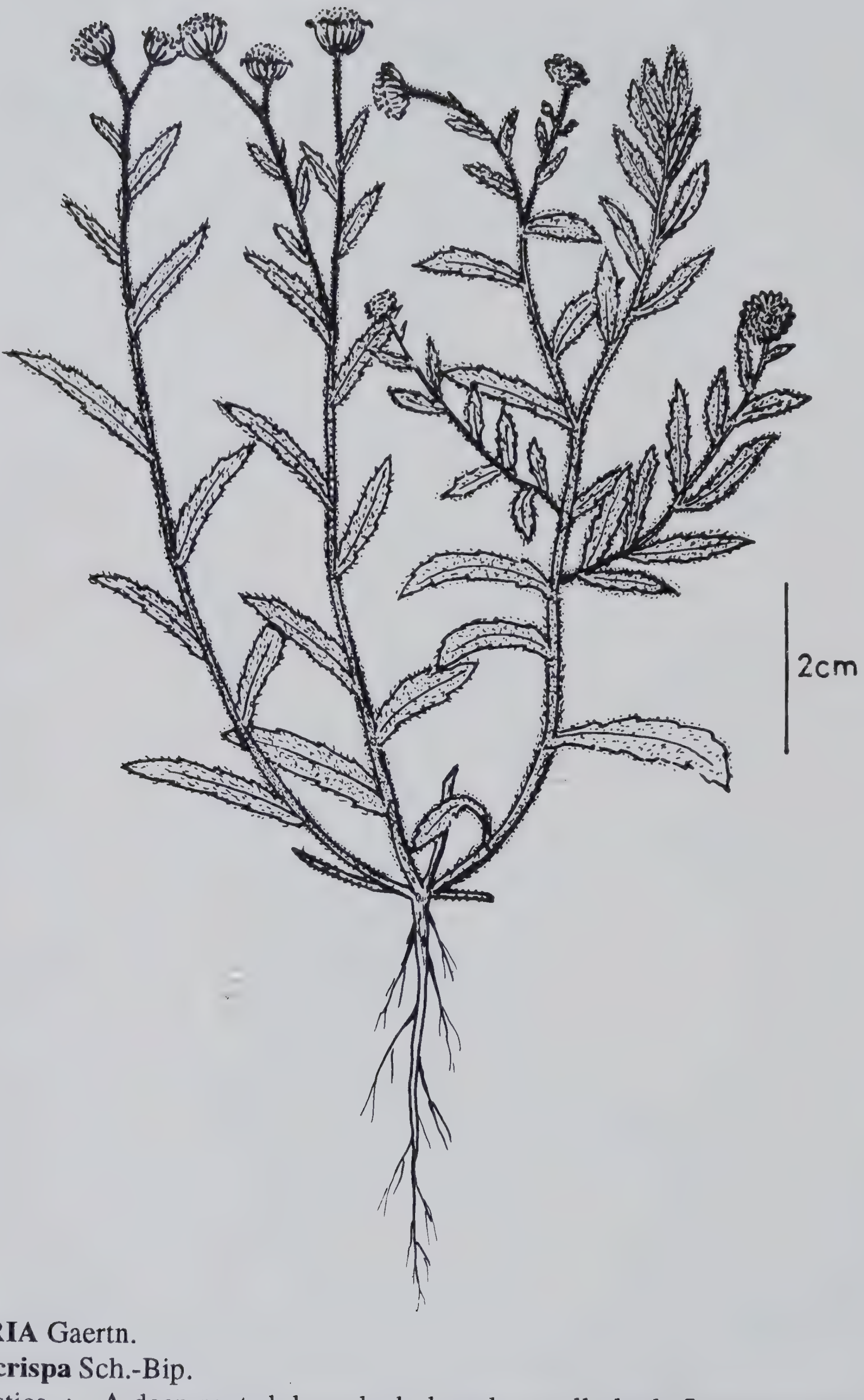
Pluchea wallichiana DC.

Characteristics : An erect undershrub with woody stem. Young branches with dense glandular hairs. Leaves 3 to 6 cm long, sessile, elliptic, usually with minutely toothed margins. Flower heads white with pinkish tips, arranged in terminal corymbs. Achenes brown, angled, with pale white pappus.

Habitat : Dry, sandy, open areas; not common.

Fl. & Fr. : November to April.

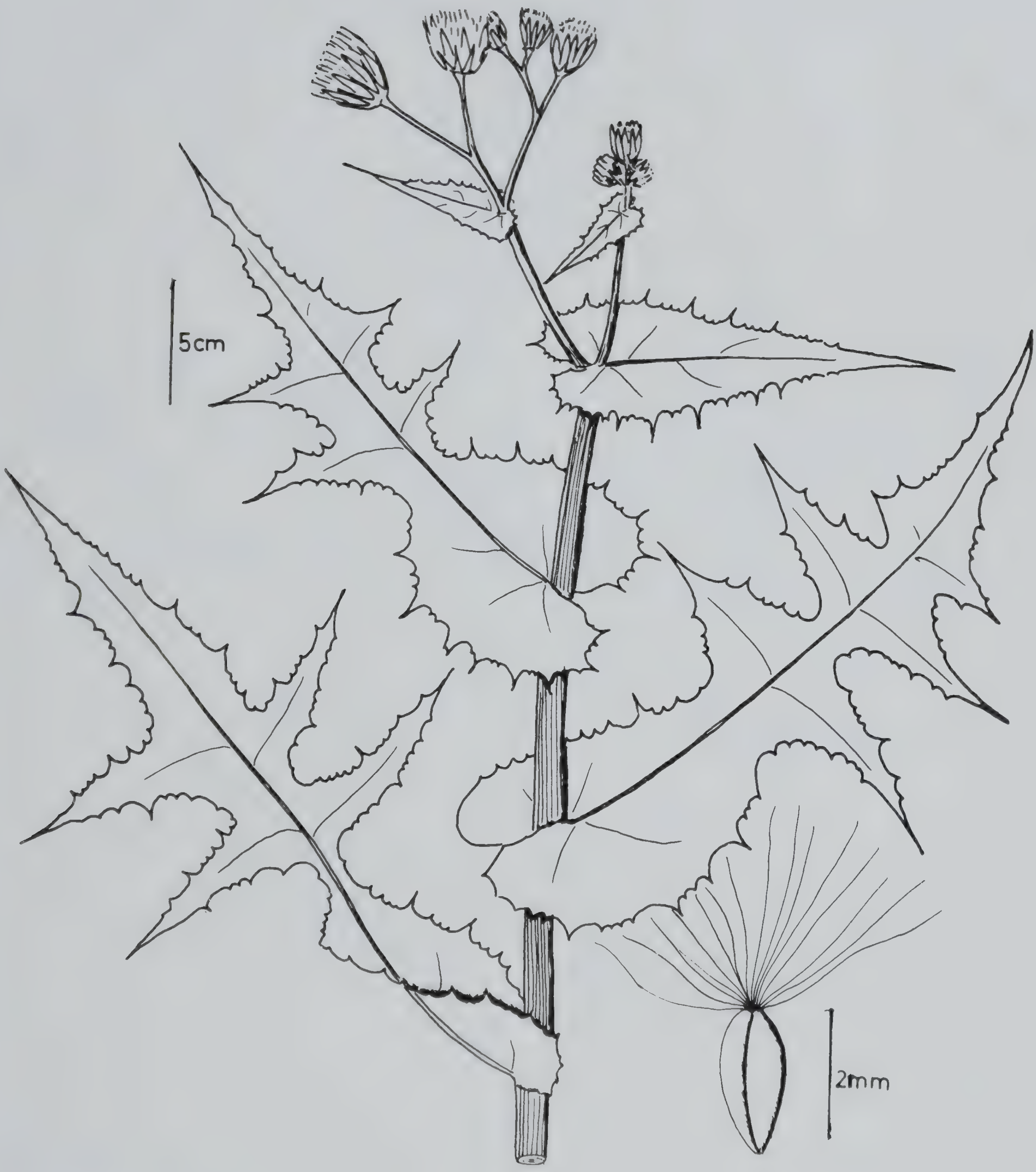
Reference : FBI. 3:272; FID. 208



PULICARIA Gaertn.

Pulicaria crispa Sch.-Bip.

Characteristics	:	A deep-rooted, branched, densely woolly herb. Leaves cottony, with toothed and recurved margin. Flower heads yellow, solitary. Achenes with white pappus.
Habitat	:	Dry, sandy areas; not common.
Fl. & Fr.	:	January to May.
Reference	:	FBI. 3:299; FUGP. 1:466; FD. 193; FID. 209; FNER. 216



SONCHUS L.

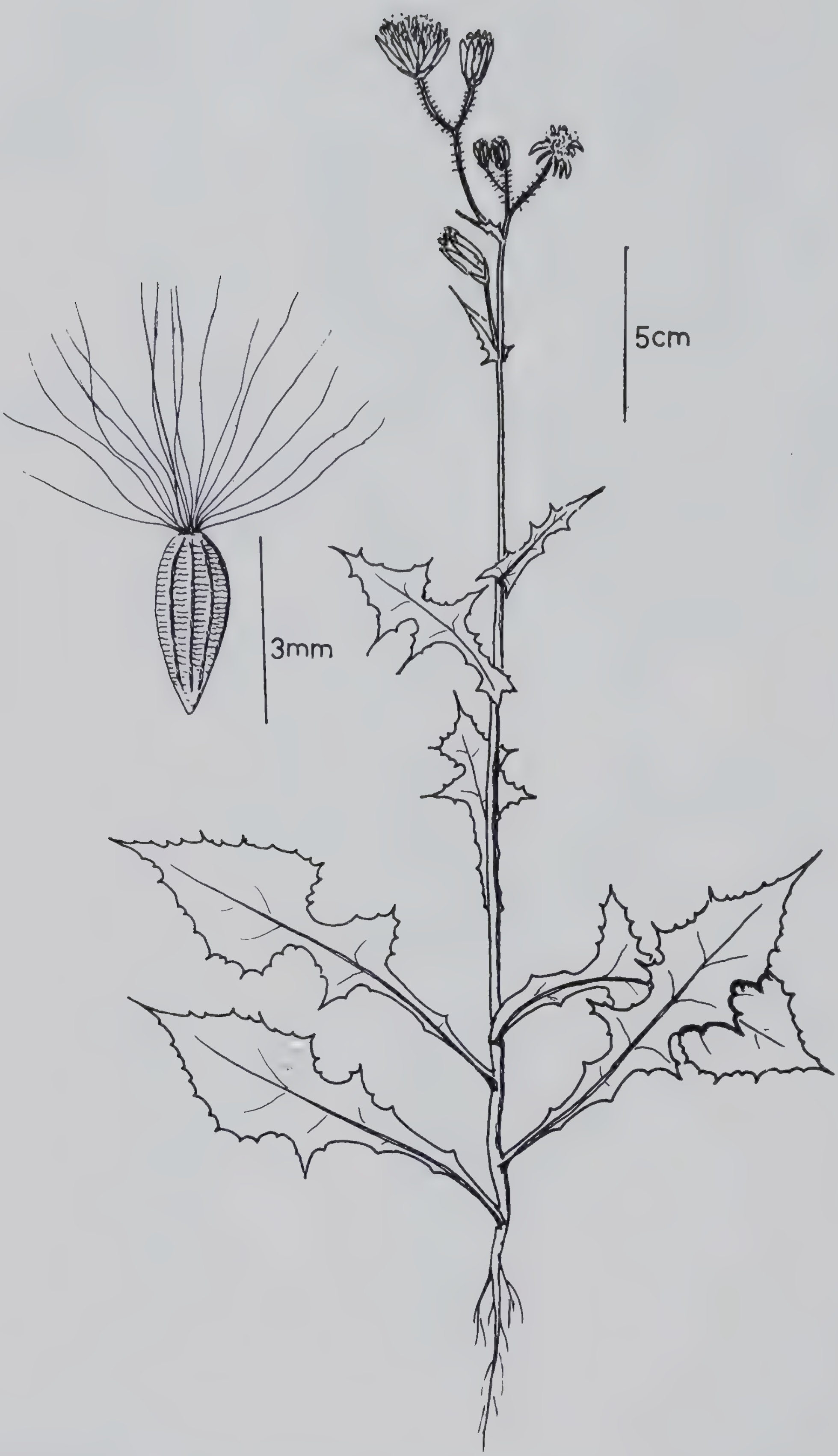
Sonchus asper (L.) Hill.

Characteristics : An erect, annual herb. Leaves pinnatifid, auriculate at base; margins toothed or spinose. Flower heads yellow, arranged in umbellate cyme. Achenes compressed; faces 3-ribbed.

Habitat : Roadsides and open areas.

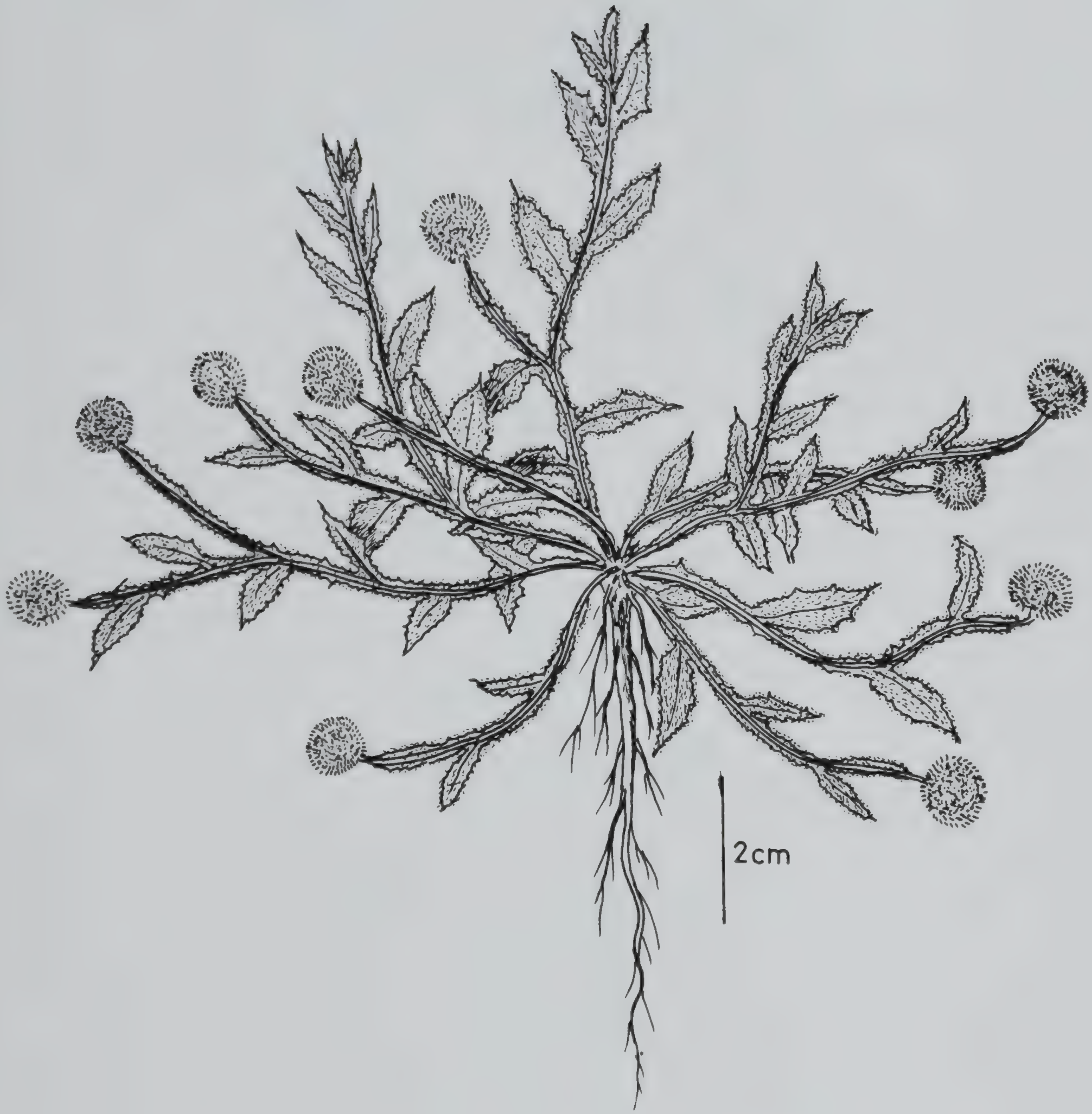
Fl. & Fr. : December to May.

Reference : FBI. 3:414; FUGP. 1:493; FD. 190; FID. 211; FNER. 217



Sonchus oleraceus L.

Characteristics	:	An erect, annual herb. Leaves pinnatifid, auriculate at base, toothed at margin. Flower heads yellow, arranged in umbellate cyme. Achenes compressed; faces 3-ribbed, muricate between the ribs.
Habitat	:	Roadsides and open areas.
Fl. & Fr.	:	December to April.
Reference	:	FBI. 3:414; FUGP. 1:492; FD. 190; FID. 211; FNER. 218



SPHAERANTHUS L.

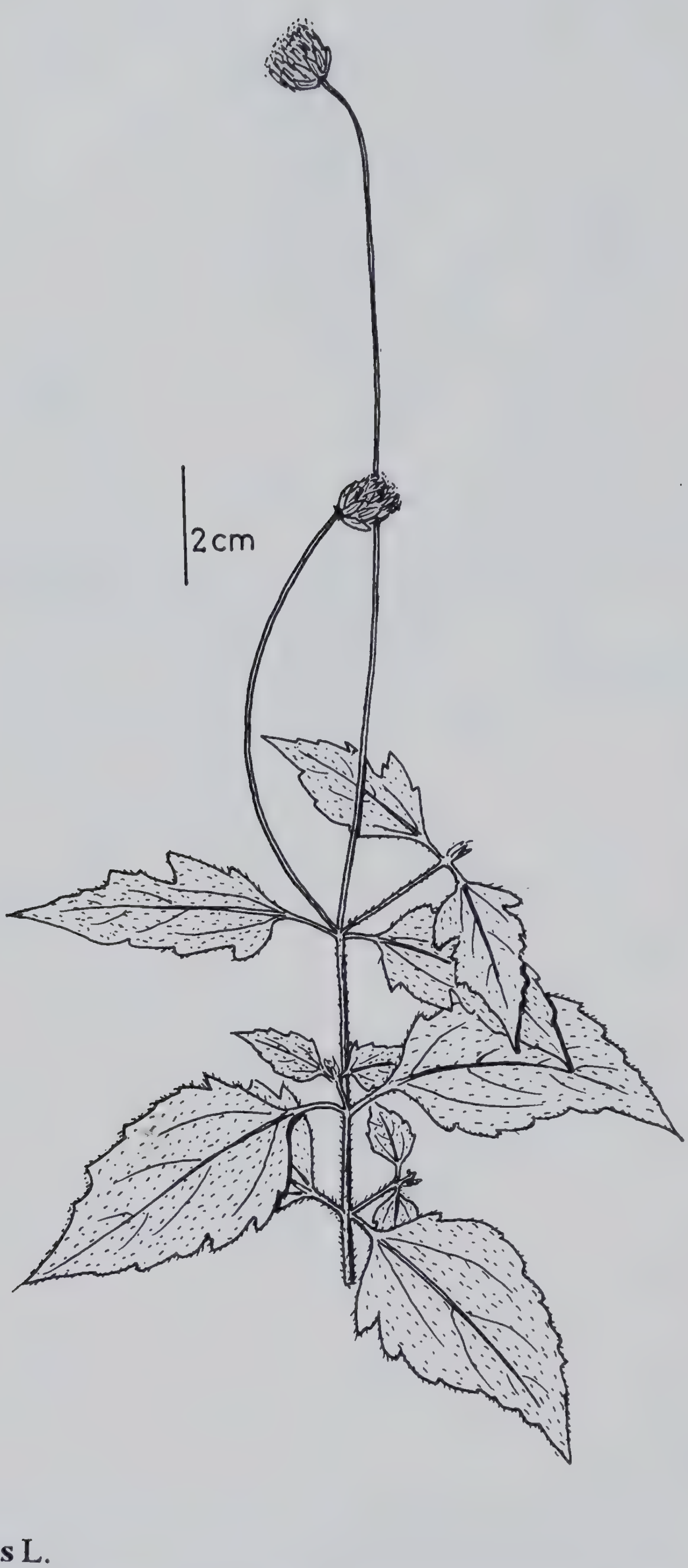
Sphaeranthus indicus L.

Characteristics : A branched, prostrate or ascending herb with glandular hairs. Branches winged; wings dentate. Leaves with clasping bases, 1.5 to 3 cm long, glandular-hairy, obovate, toothed at margin. Flowers purplish, arranged in globose heads; heads solitary, axillary or terminal. Achenes hairy; pappus absent.

Habitat : Dry, sandy, open areas; not common.

Fl. & Fr. : January to April.

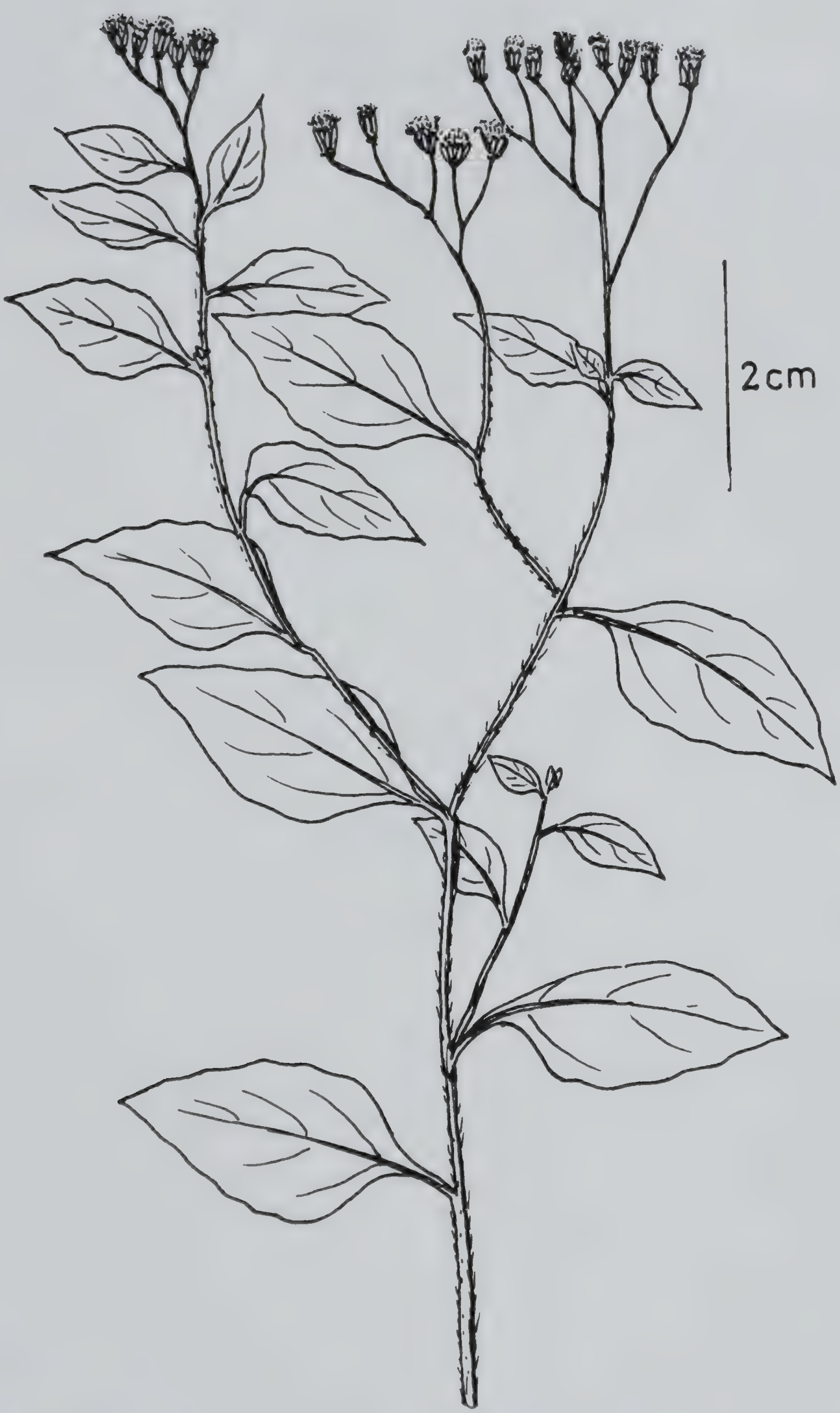
Reference : FBI. 3:275; FUGP. 1:458; FID. 211; FNER. 219



TRIDAX L.

Tridax procumbens L.

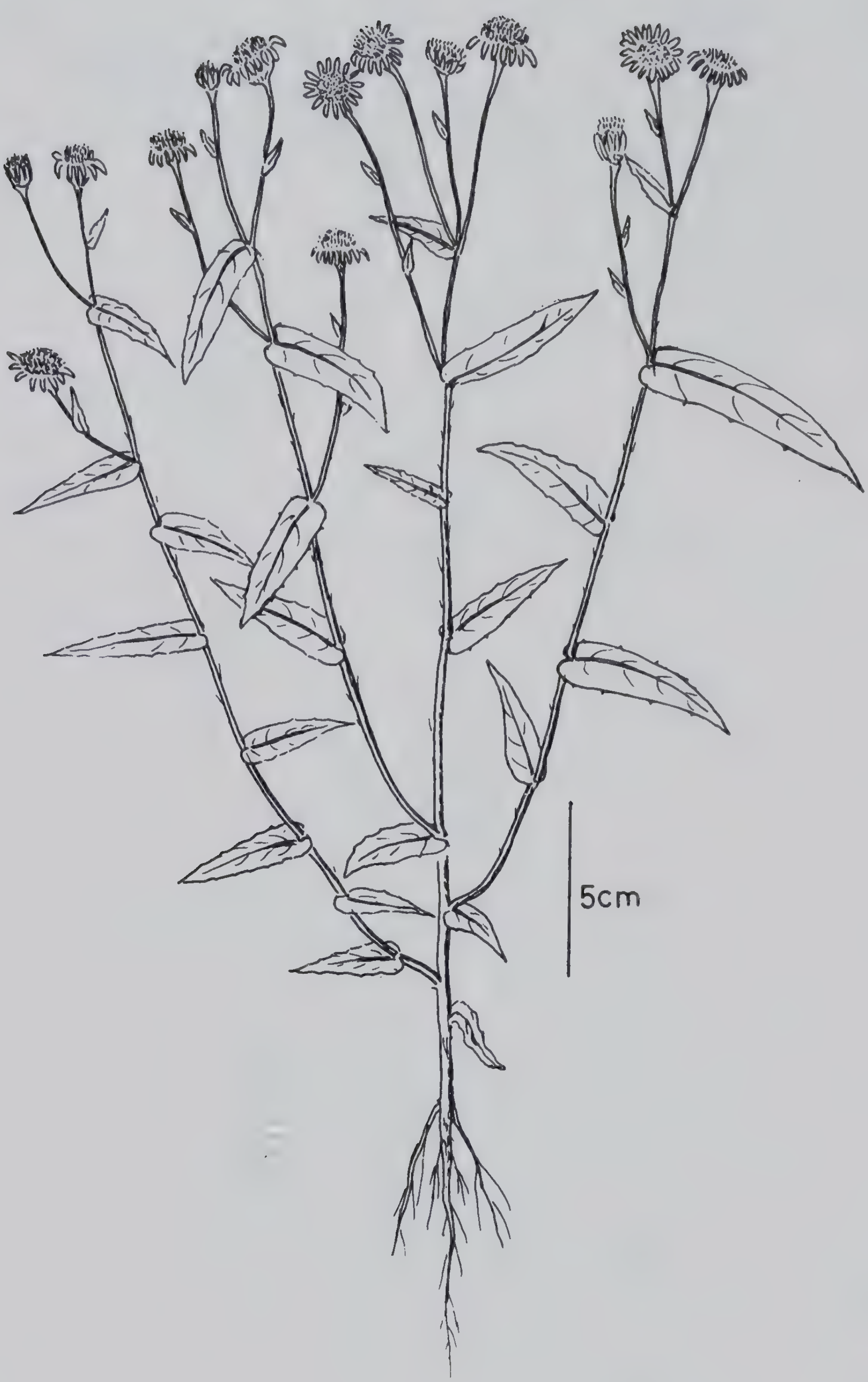
Characteristics	:	A straggling, hairy herb. Leaves opposite, 2.5 to 4.0 cm long, ovate, pinnatifid, toothed at margin. Flower heads cream-coloured, solitary on long peduncle. Achenes black, with silky hairs.
Habitat	:	Along roadsides and margins of aquatic area; common.
Fl. & Fr.	:	Throughout the year.
Reference	:	FBI. 3:311; FUGP. 1:475; FD. 199; FID. 212; FNER. 220.



VERNONIA Schreb.

Vernonia cinerea (L.) Less.

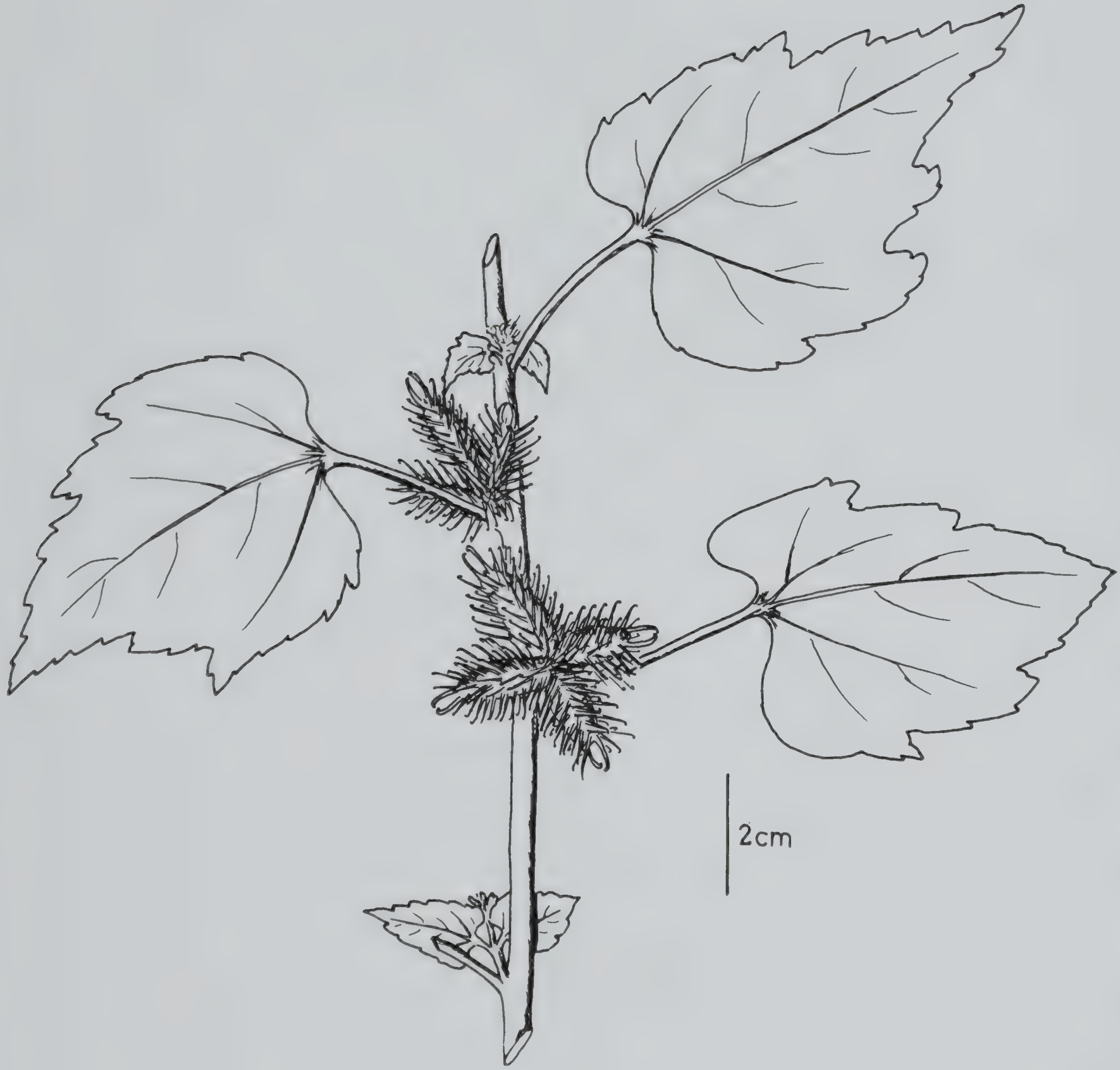
Characteristics	:	An erect, branching, annual herb with ribbed, hairy stem. Leaves 1.5 to 6 cm long, vary in size and shape; petiole short. Flower heads pinkish-violet, arranged in corymbs. Achenes brown, hairy, with white pappus.
Habitat	:	Common along the margin of aquatic area.
Fl. & Fr.	:	September to February.
Reference	:	FBI. 3:233; FUGP. 1:441; FD. 190; FID. 213; FNER. 223



VICOA Cass.

Vicoa indica (L.) DC.

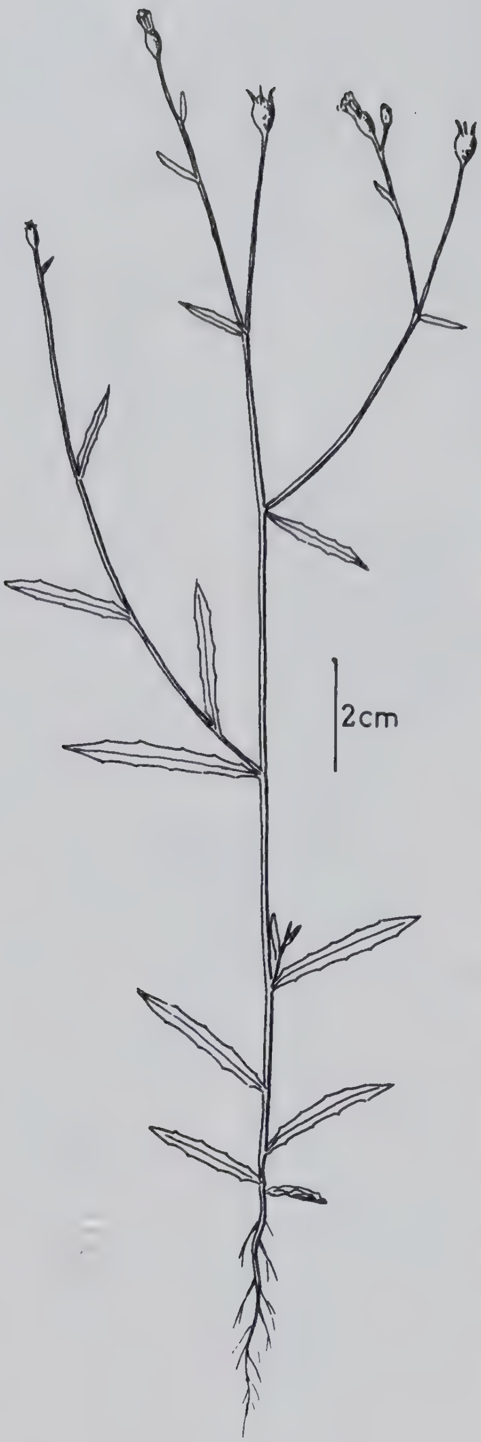
Synonyms : *V. auriculata* Cass.
Inula indica L.
Characteristics : An erect, branching herb with sparsely hairy stem. Leaves sessile, lanceolate, auriculate at base; margin toothed or entire; upper surface white hairy and lower surface glandular. Flower heads yellow, solitary or in a loose panicle. Achenes sparsely hairy.
Habitat : Roadsides and dry, open areas.
Fl. & Fr. : October to March.
Reference : FBI. 3:297; FUGP. 1:464; FD. 193; FID. 213; FNER. 224



XANTHIUM L.

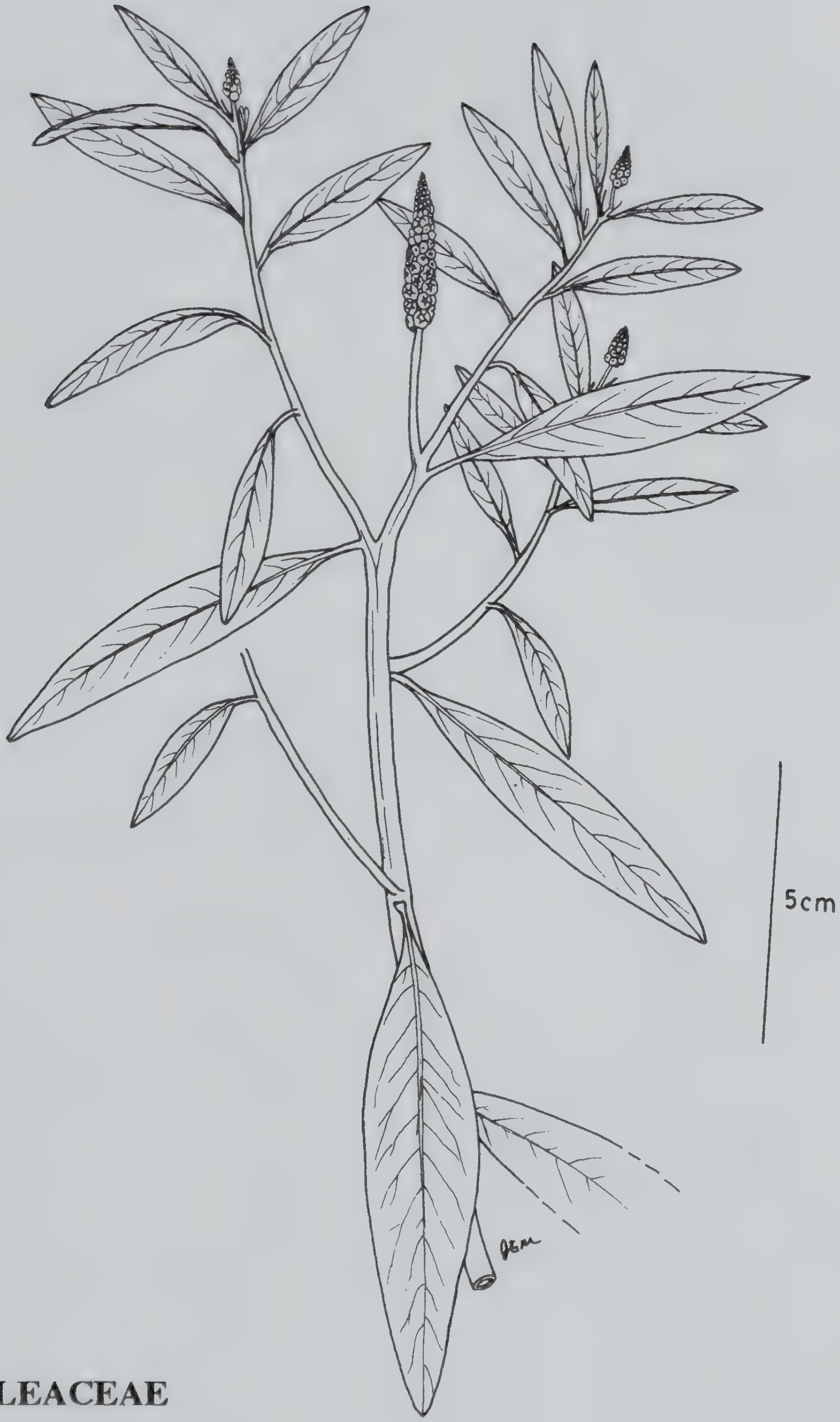
Xanthium strumarium L.

Local name	:	Chirchitta
Characteristics	:	An erect, annual herb. Leaves 4 to 12 cm long, cordate, toothed at margins, sometimes 3-lobed. Flowers unisexual; male flowers arranged in terminal racemes and females in axillary clusters. Fruiting involucre covered with hooked prickles; beaks 2. Achenes glabrous, without pappus.
Habitat	:	Along roadsides and shady area.
Fl. & Fr.	:	September to December.
Reference	:	FBI. 3:303; FUGP. 1:467; FD. 196; FID. 214; FNER. 224



36. CAMPANULACEAE

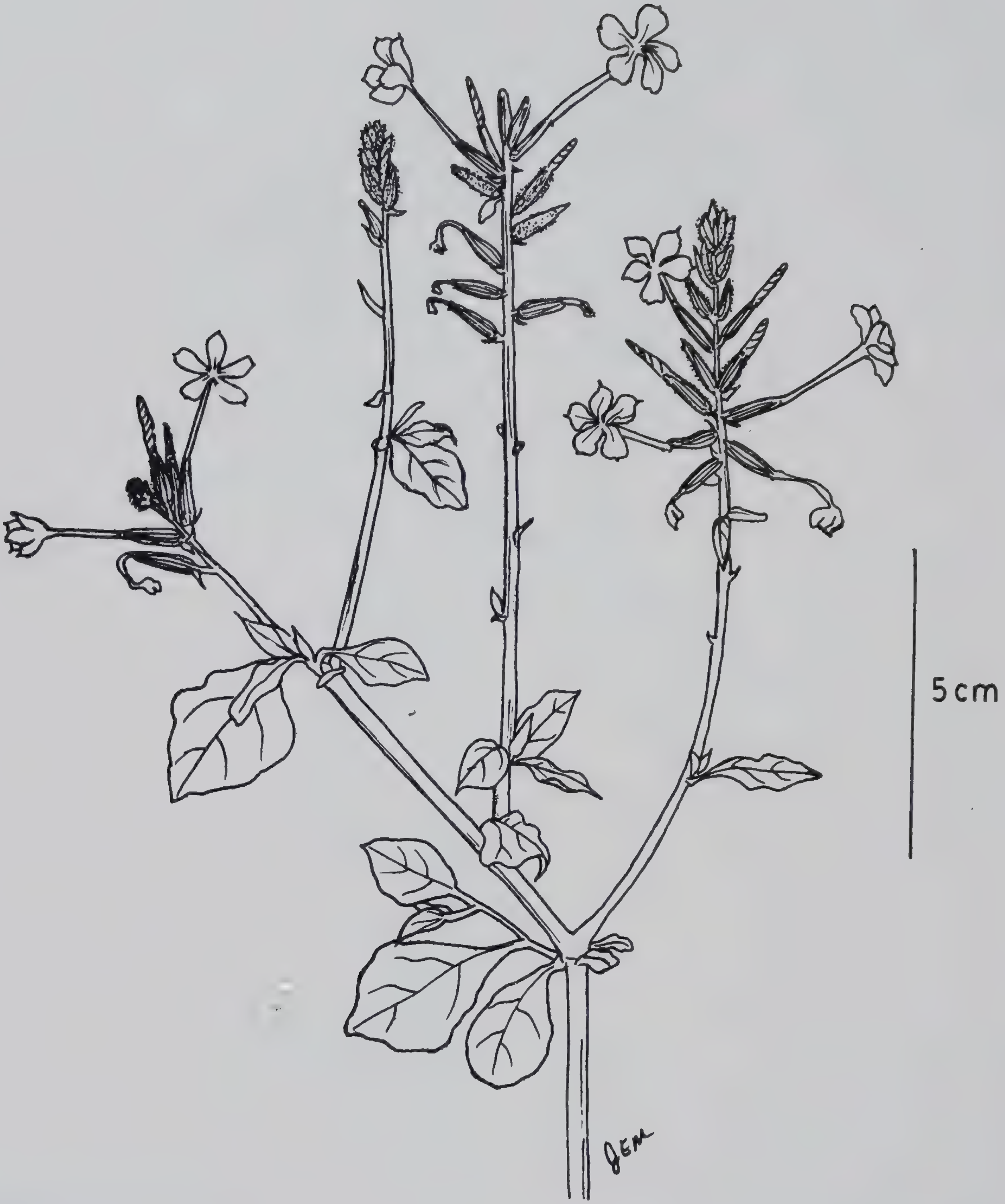
WAHLENBERGIA Schrad. ex Roth
Wahlenbergia marginata (Thunb.) DC.
Synonym : *W. gracilis* (Forst.) DC.
Characteristics : An erect, annual herb. Stem hairy on lower parts and glabrous on upper parts. Leaves alternate, sessile, usually lanceolate; margins thick, white, more or less toothed. Flowers pale blue, terminal, solitary or in groups of 2 to 3. Fruit a 3-valved, glabrous capsule.
Habitat : Common in moist soil after winter.
Fl. & Fr. : February to May.
Reference : FBI. 3:429; FUGP. 1:498; HFD. 295; FMD. 177



37. SPHENOCLEACEAE

SPHENOCLEA Gaertn.
Sphenoclea zeylanica Gaertn.

Characteristics : An erect, stout, annual herb with glabrous stem. Leaves alternate, sessile or short petioled. Flowers greenish-yellow, sessile, closely packed in a terminal or axillary, cylindrical spike. Fruit a capsule with persistent calyx. Seeds minute.
Habitat : Frequently occurs in shallow, inundated, monsoonal pools.
Fl. & Fr. : August to November.
Reference : FBI. 3:438; FUGP. 1:499; FD. 203



38. PLUMBAGINACEAE

PLUMBAGO L.

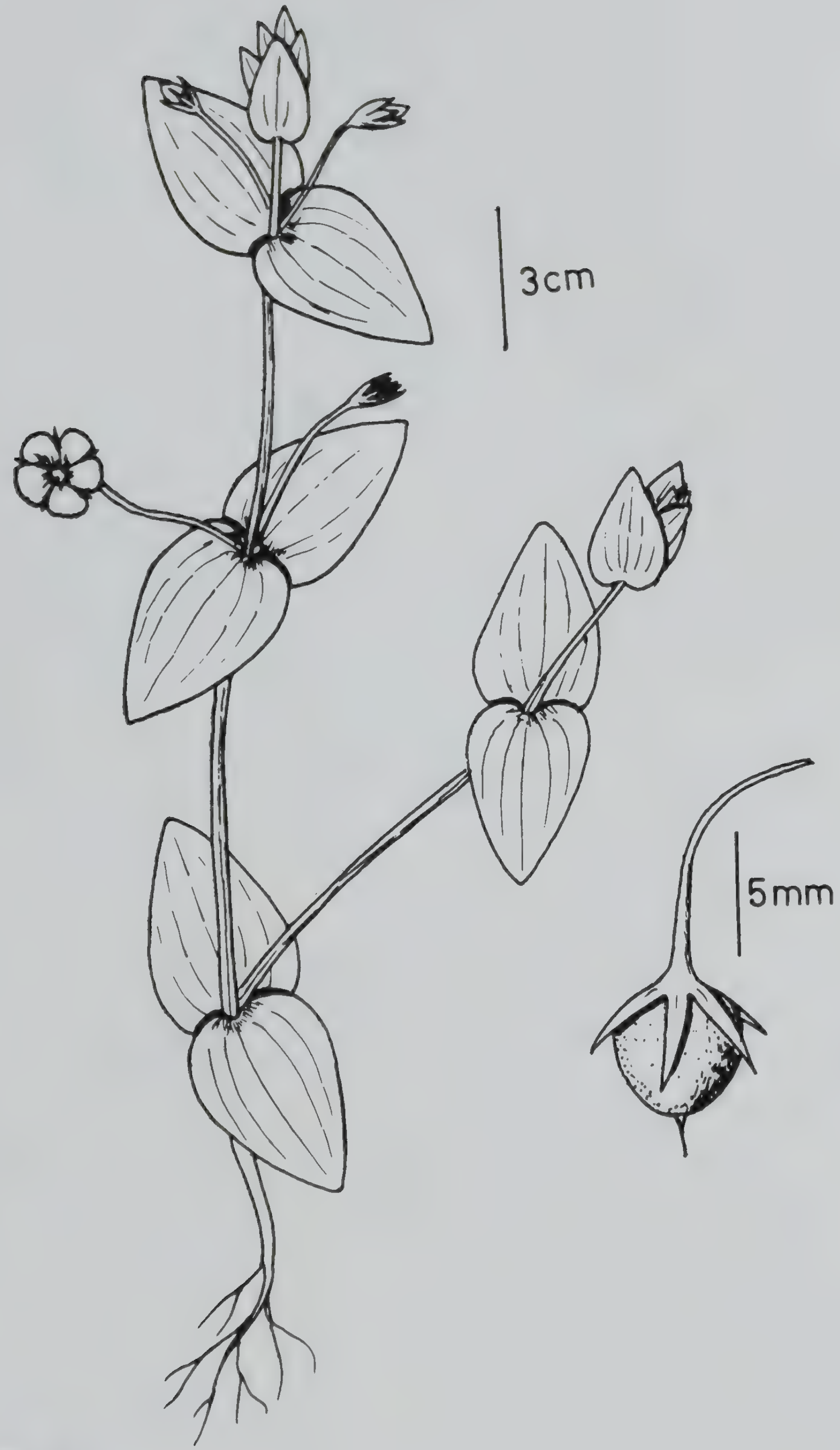
Plumbago zeylanica L.

Characteristics : A straggling, perennial shrub with striate stem. Leaves alternate, 5 to 10 cm long, ovate. Flowers white, arranged in long racemes; calyx glandular, sticky, persistent on fruit. Fruit an oblong, pointed capsule.

Habitat : Frequently found straggling over other shrubs like *Capparis* along roadsides and in uplands.

Fl. & Fr. : August to January.

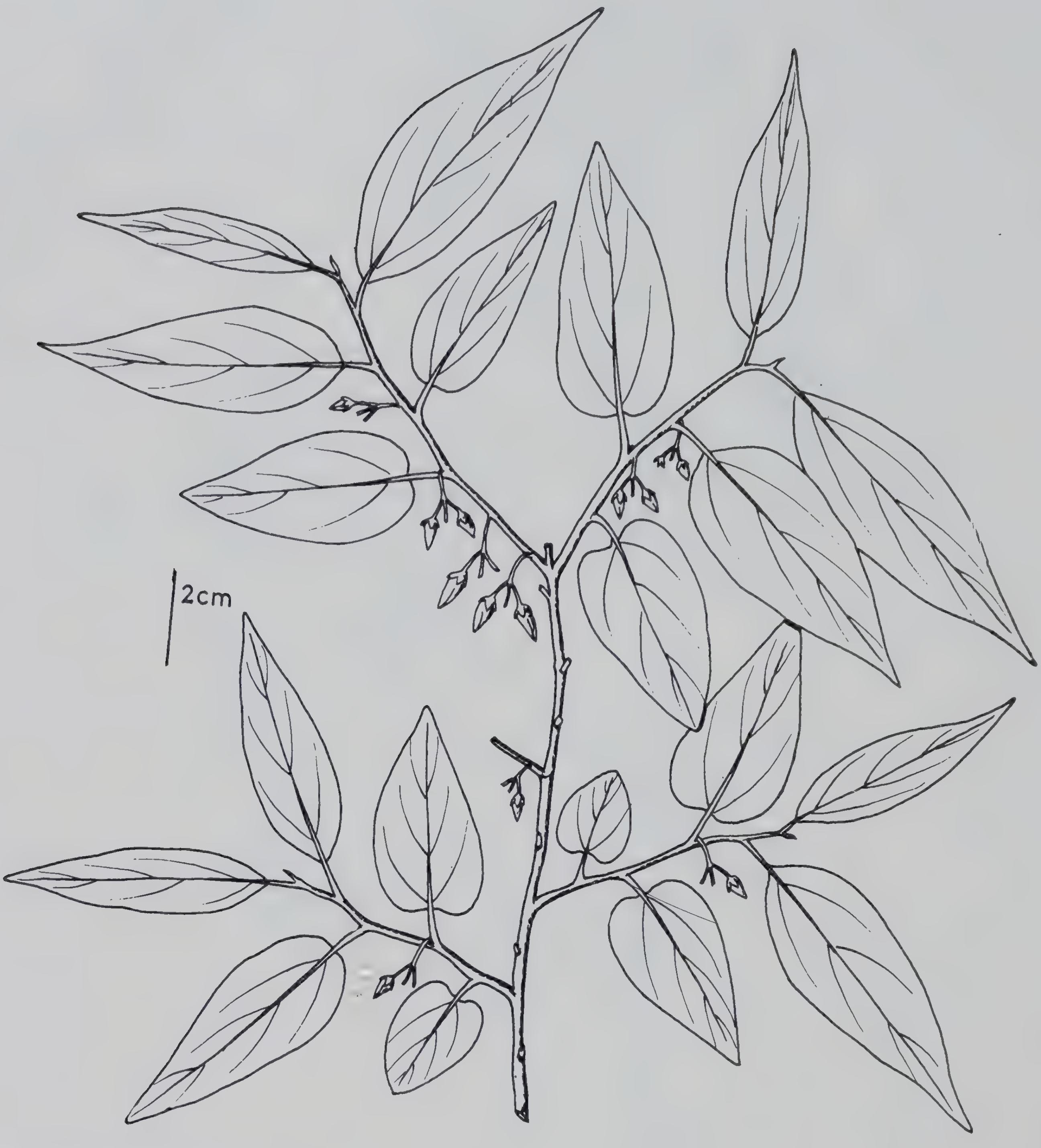
Reference : FBI. 3:480; FUGP. 2:2; FD. 203; FNER. 226



39. PRIMULACEAE

ANAGALLIS L.
Anagallis arvensis L.

Characteristics	:	An erect, branched, glabrous, annual herb with quadrangular stem. Leaves opposite, 1 to 3 cm long, heart-shaped, dotted with glands. Flowers blue, solitary in leaf axils. Fruit a globose capsule with recurved pedicel. Seeds minute, trigonous.
Habitat	:	Common in winter, in moist open areas throughout the uplands.
Fl. & Fr.	:	January to March.
Reference	:	FBI. 3:506; FUGP. 2:6; FD. 203; FID. 214; FNER. 227



40. EBENACEAE

DIOSPYROS L.

Diospyros cordifolia Roxb.

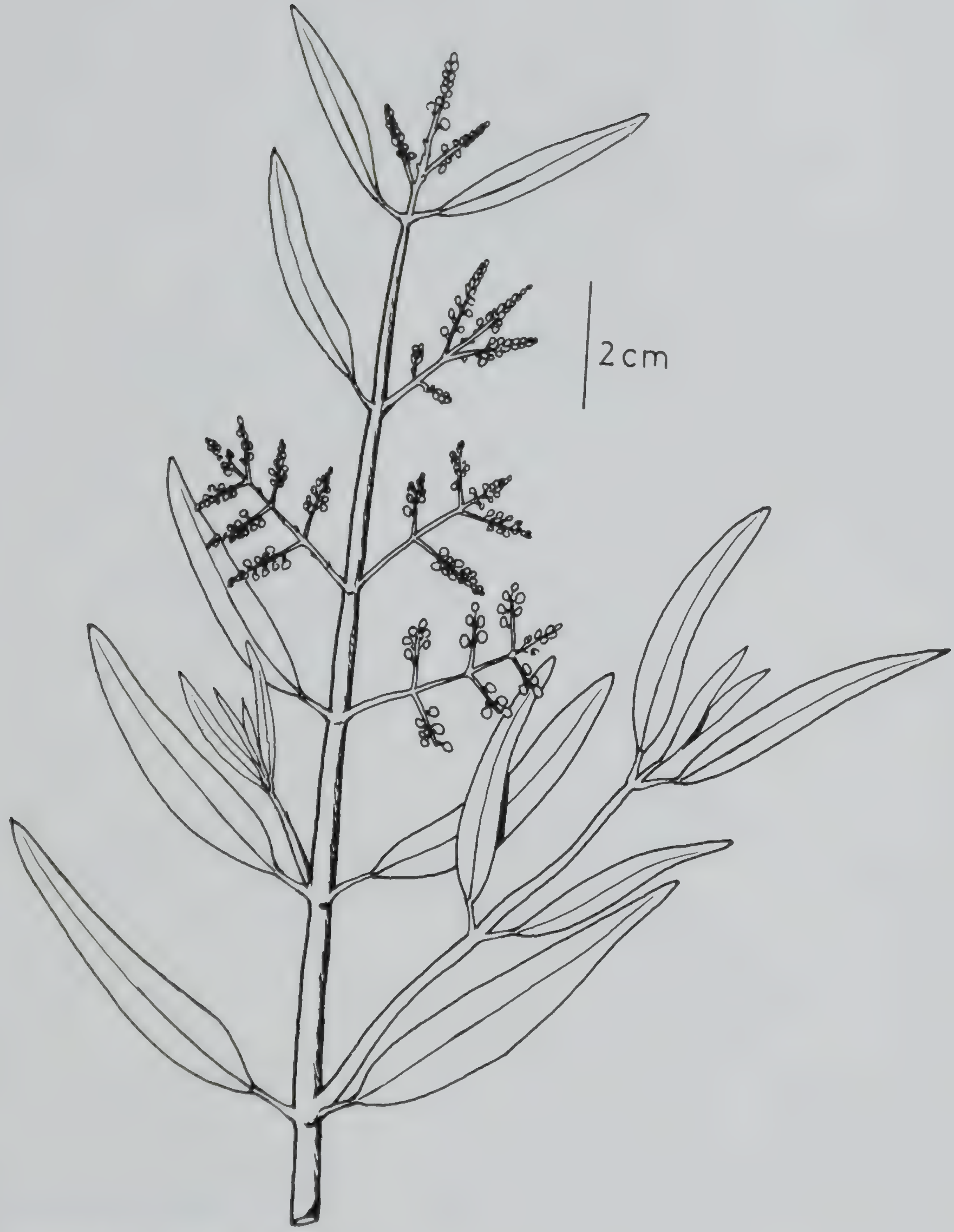
Local name : Pasenthu

Characteristics : A large shrub or small tree with dark brown to black, furrowed bark. Leaves ovate-oblong to ovate-lanceolate, cordate to rounded at base. Flowers unisexual; male flowers white, in axillary cymes of 3; females solitary. Fruits globose, with persistent calyx; yellow when ripe.

Habitat : Wooded areas throughout the uplands.

Fl. : April to May; Fr. : June to September.

Reference : FUGP. 2:17; FD. 206; FK. 1:336



41. SALVADORACEAE

SALVADORA L.

Salvadora oleoides Dence.

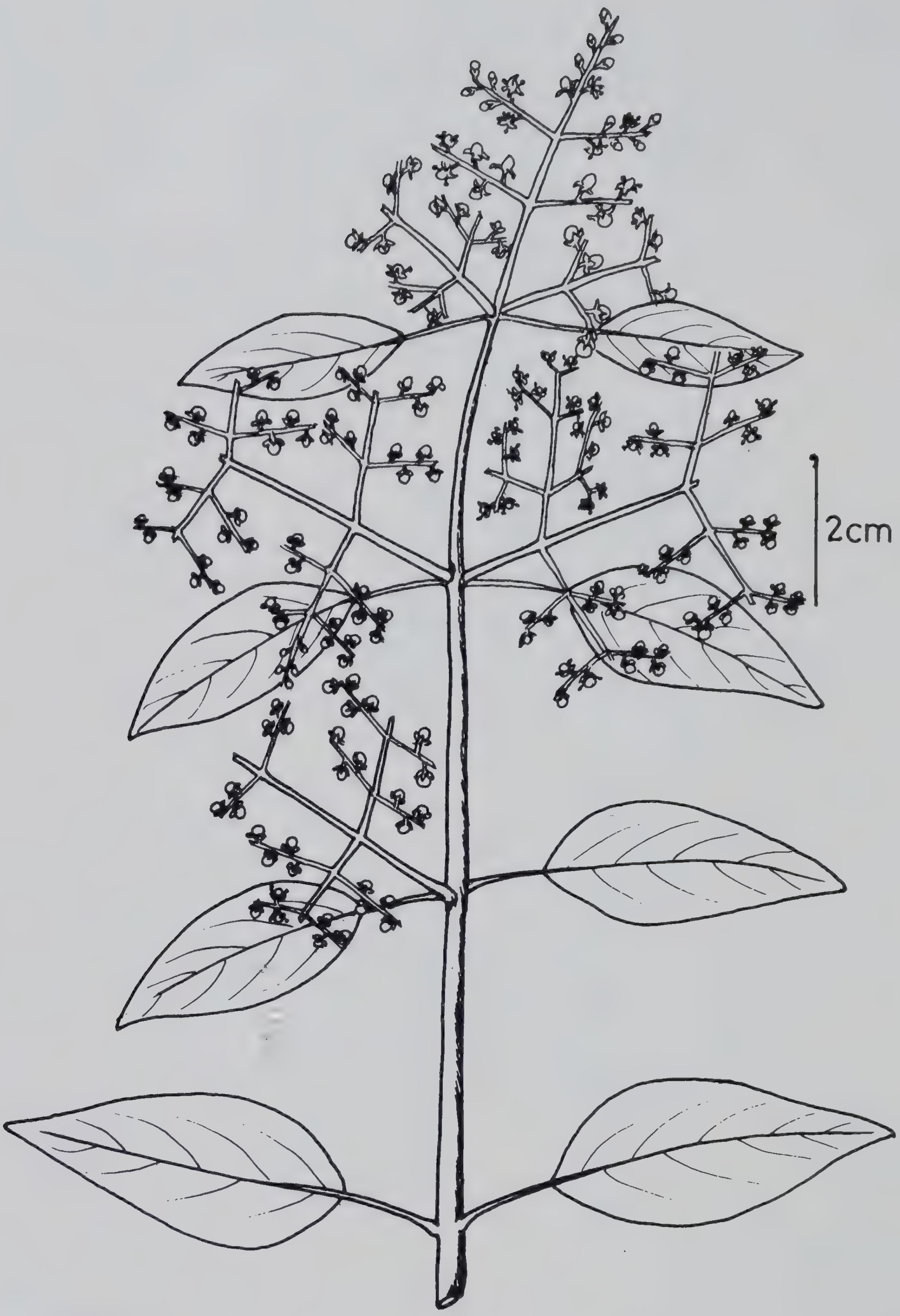
Local name : Dungar, Pilu

Characteristics : A much-branched, small tree with grey bark. Leaves 3 to 10 cm long, glabrous, linear-lanceolate. Flowers greenish-white, sessile, in branched spikes. Fruit a 1-seeded, globose berry; yellow when ripe.

Habitat : Common in dry sandy soil.

Fl. & Fr. : March to July.

Reference : FBI. 3:620; FUGP. 2:29; FD. 210; FID. 215; FNER. 229



Salvadora persica L.

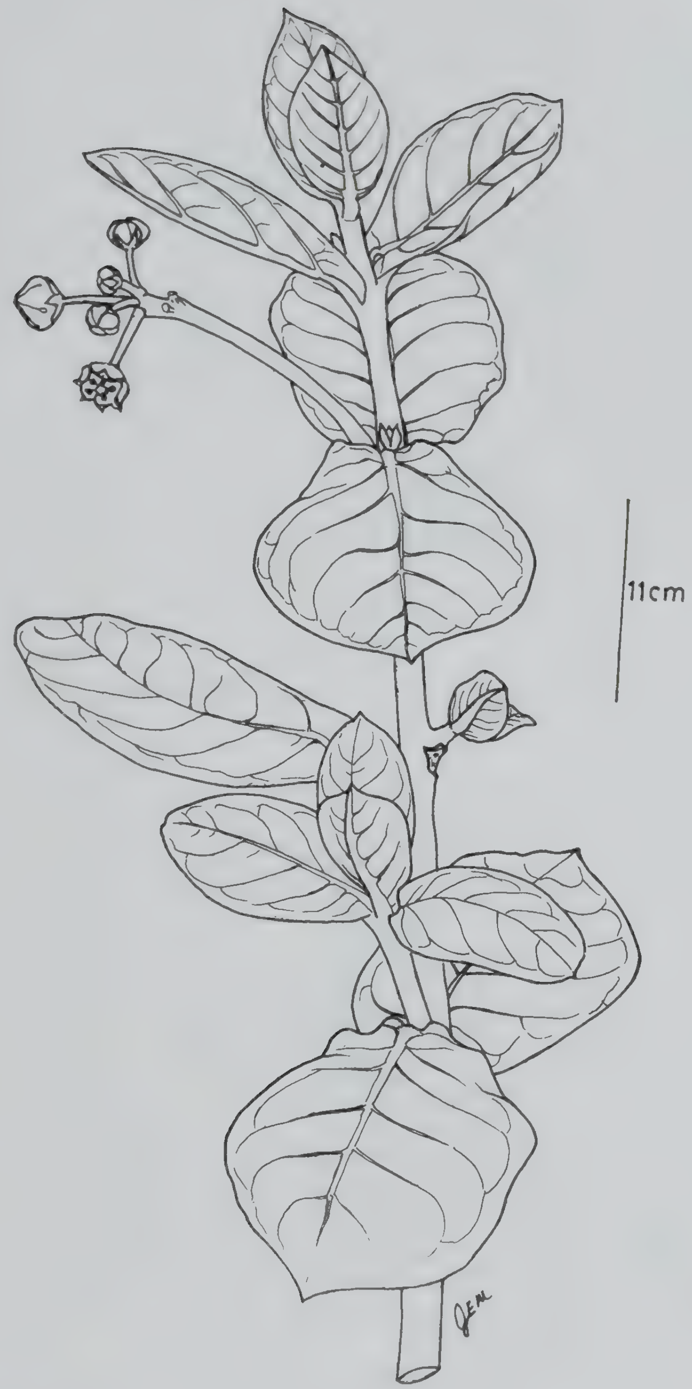
Local name : Khadyar

Characteristics : A small tree with drooping branches. Leaves 3 to 6.5 cm long, elliptic-lanceolate to ovate in shape. Flowers greenish-yellow, arranged in terminal or axillary panicles. Fruits fleshy, subglobose, 1-seeded, reddish when ripe.

Habitat : Common in dry sandy soil and along roadsides throughout the uplands.

Fl. & Fr. : December to June.

Reference : FBI. 3:619; FUGP. 2:28; FD. 209; FID. 215; FNER. 230



42. ASCLEPIADACEAE

CALOTROPIS R. Br.

Calotropis procera (Ait.) R. Br.

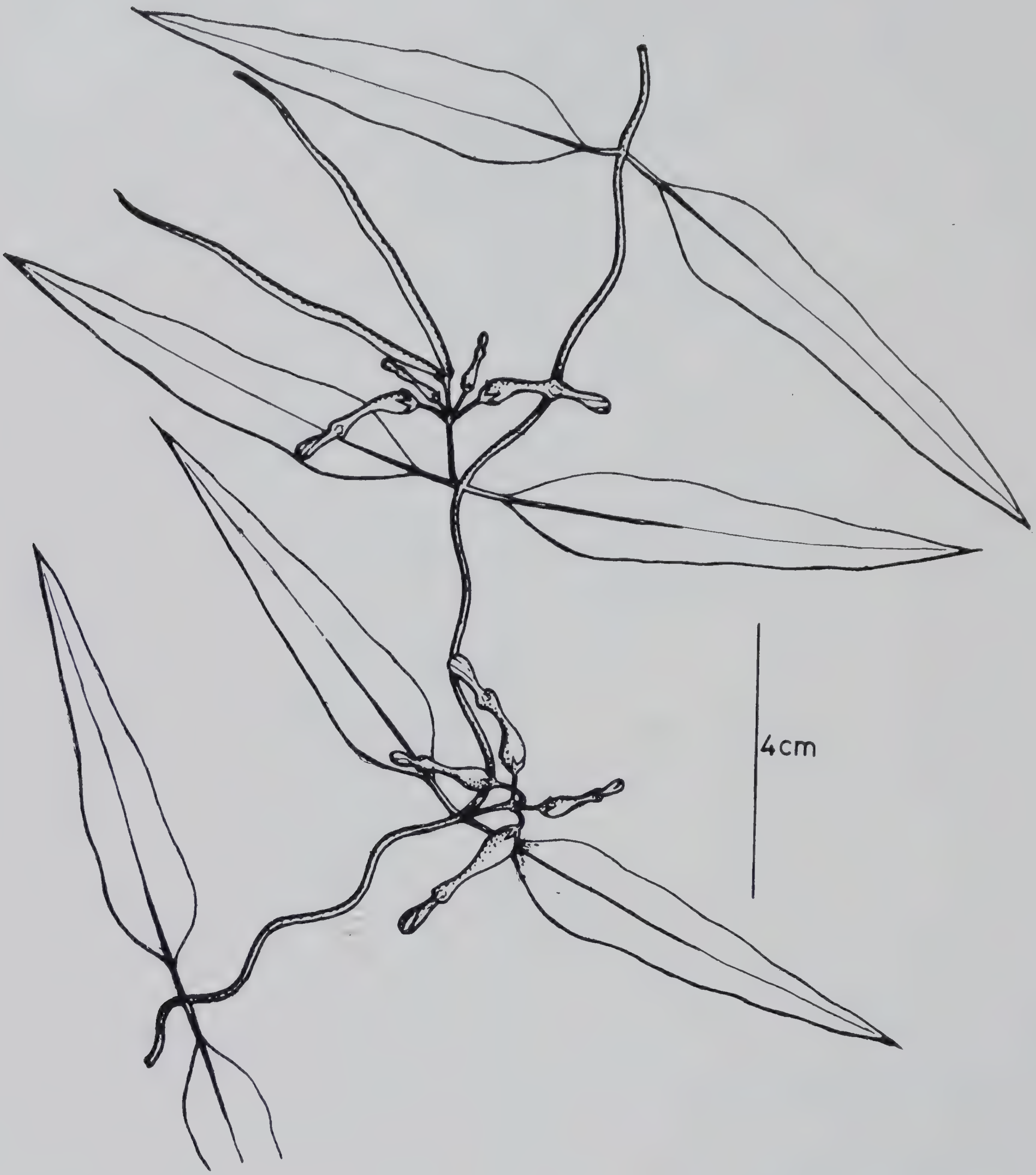
Local name : Aak

Characteristics : An erect shrub branching from the base. Stems with milky latex. Leaves opposite, subsessile, broadly ovate or elliptic, cottony-pubescent. Flowers purplish, pale silvery outside; arranged in axillary, umbellate cymes. Fruit a recurved follicle usually in pairs. Seeds flat with a tuft of white, silky hairs.

Habitat : Dry, sandy soil.

Fl. & Fr. : February to July.

Reference : FBI. 4:18; FUGP. 2:48; FD. 218; FID. 219; FNER. 236



CEROPEGIA L.

Ceropegia bulbosa Roxb. var. **lushii** (Grah.) Hook. f.

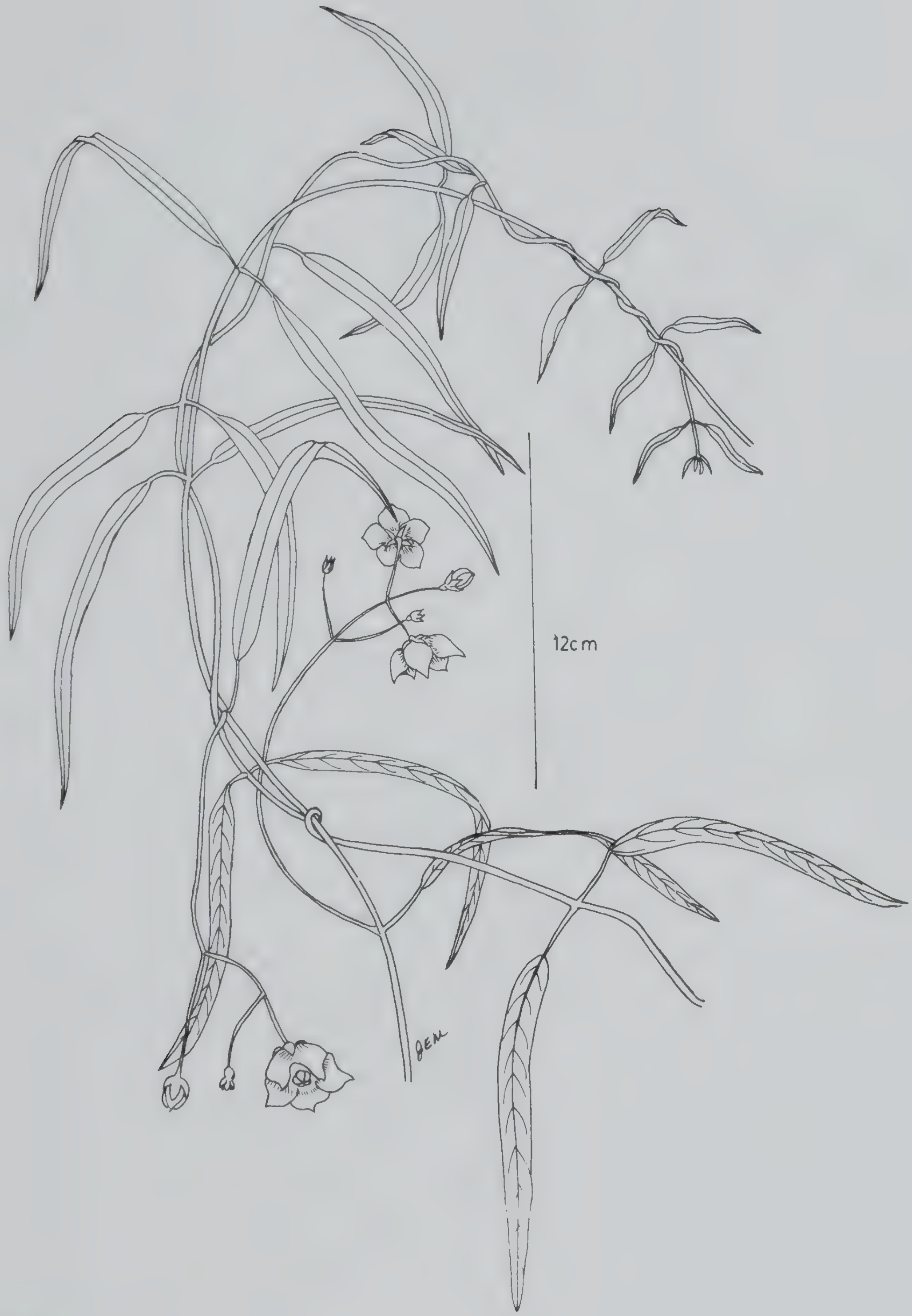
Local name : Barbatta

Characteristics : A perennial twiner with slender, glabrous stems and tuberous rootstock. Leaves opposite, 2 to 4 cm long, linear-lanceolate. Flowers purple, in axillary umbellate cymes. Fruit a long, slender follicle, occurs in pairs.

Habitat : Found twining on small shrubs in dry, sandy areas; not common.

Fl. & Fr. : August to September.

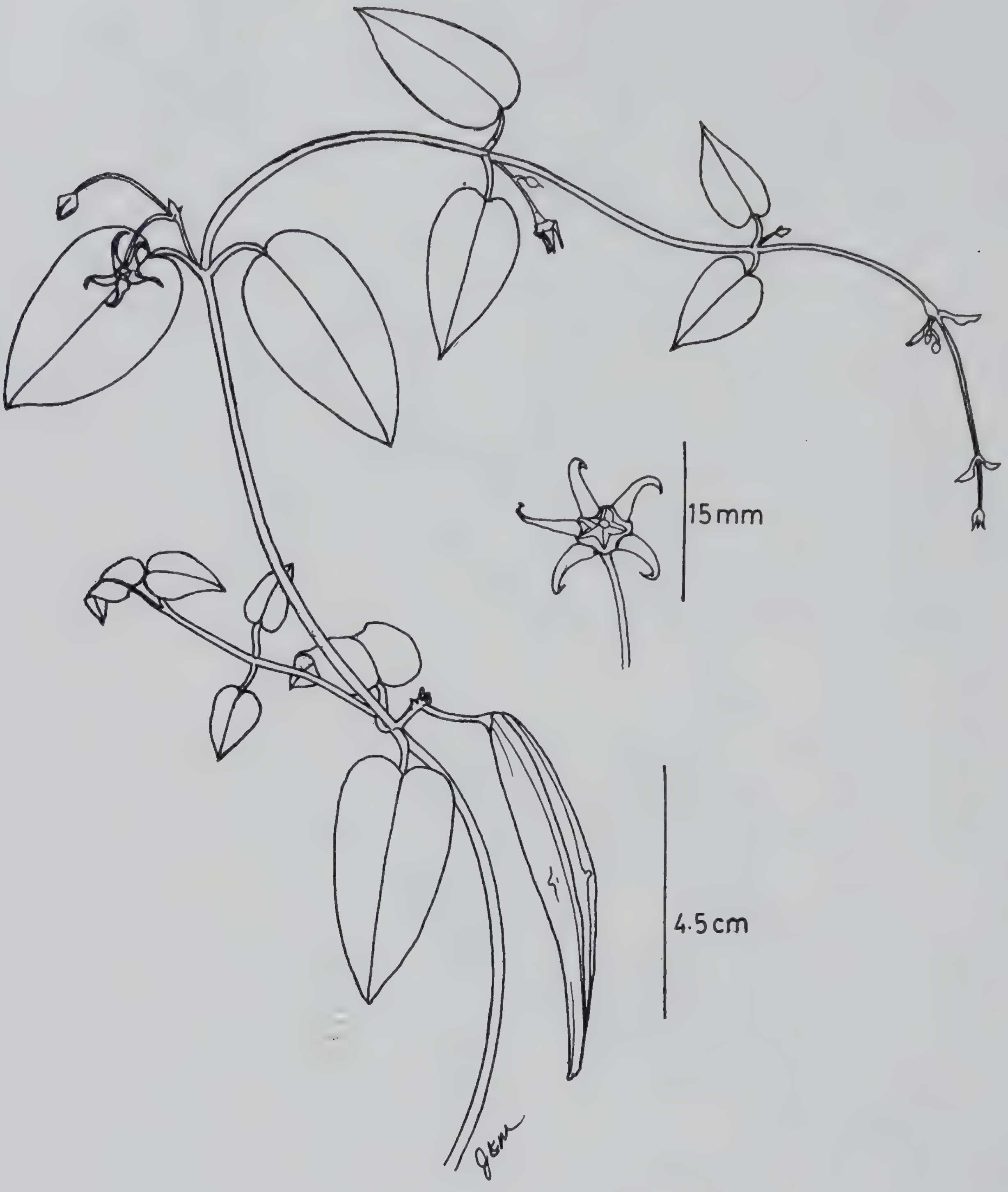
Reference : FBI. 4:67; FUGP. 2:66; FID. 221; FNER. 238



OXYSTELMA R. Br.

Oxystelma secamone (L.) Karst.

Synonym	:	*O. esculentum* (L. f.) R. Br.
Characteristics	:	A branched twiner with slender stem; latex milky. Leaves opposite, 3 to 9 cm long, glabrous, linear-lanceolate. Flowers pink with purple veins inside, white outside; arranged in drooping, axillary cymes. Fruit a 3 to 8 cm long, glabrous follicle, occurring in pairs. Seeds flat with a white coma.
Habitat	:	Twining on shrubs and small trees; commonly seen along roadside.
Fl. & Fr.	:	July to September.
Reference	:	FBI. 4:17; FUGP. 2:51; FD. 218; FID. 224; FNER. 240



PENTATROPIS R. Br.

Pentatropis nivalis (Gmel.) Field & Wood

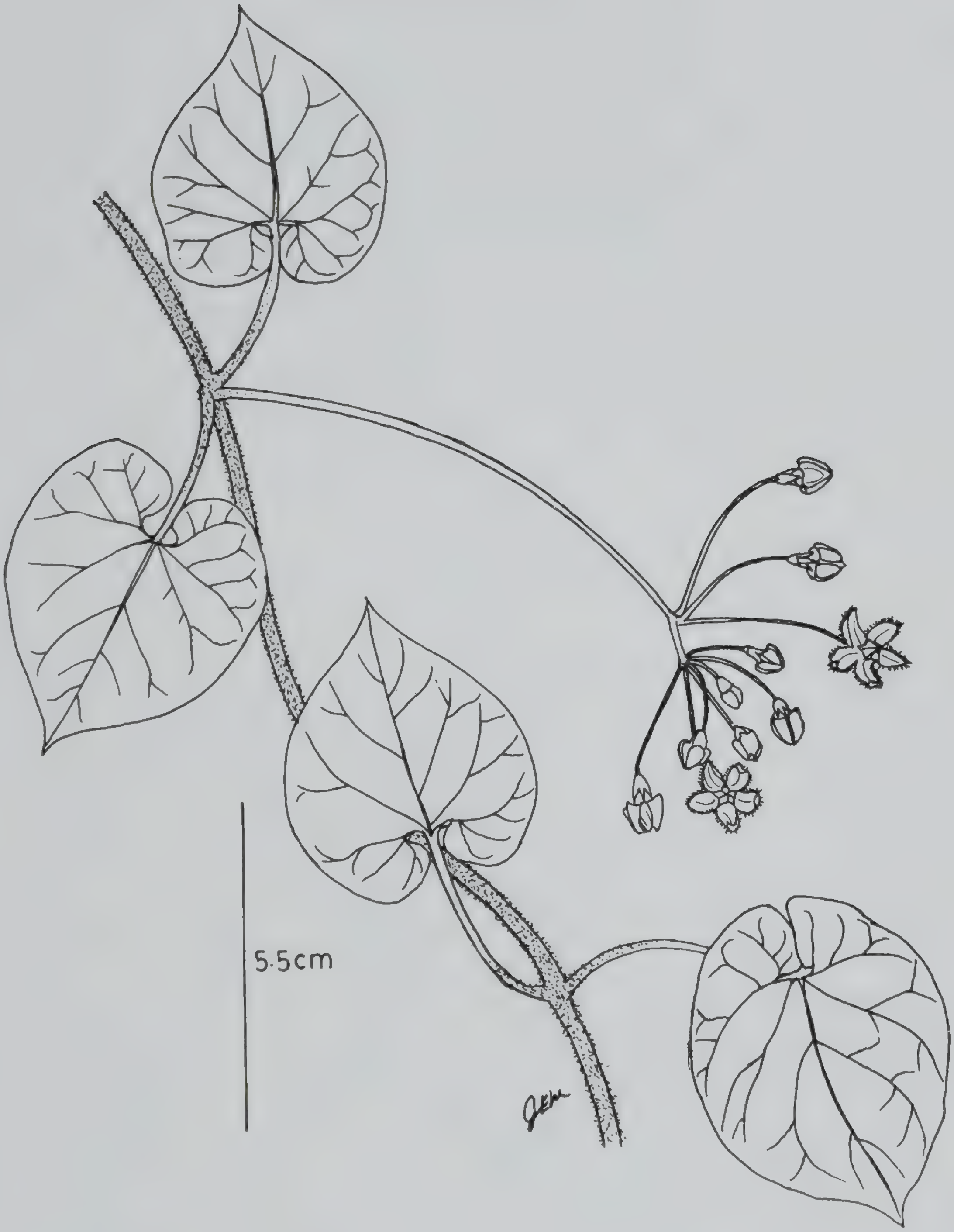
Synonyms : *P. spiralis* sensu Decne.
P. cynanchoides R. Br.

Characteristics : A branched twiner with slender, glabrous stem. Stem emits a watery sap when bruised. Leaves 5 to 6.5 cm long, opposite, petiolate, usually ovate in shape. Flowers greenish- yellow, arranged in axillary, umbellate cymes. Fruit a long follicle, 5 to 6.5 cm long, pointed at tip, occur in pairs. Seeds flat, ovate, with white coma.

Habitat : Climbing on shrubs and small trees throughout the uplands.

Fl. : July to August; Fr. : August to February.

Reference : FBI. 4:19; FUGP. 2:52; FD. 219; FID. 224; Kew Bull. 38:215. 1983



PERGULARIA L.

Pergularia daemia (Forsk.) Chiov.

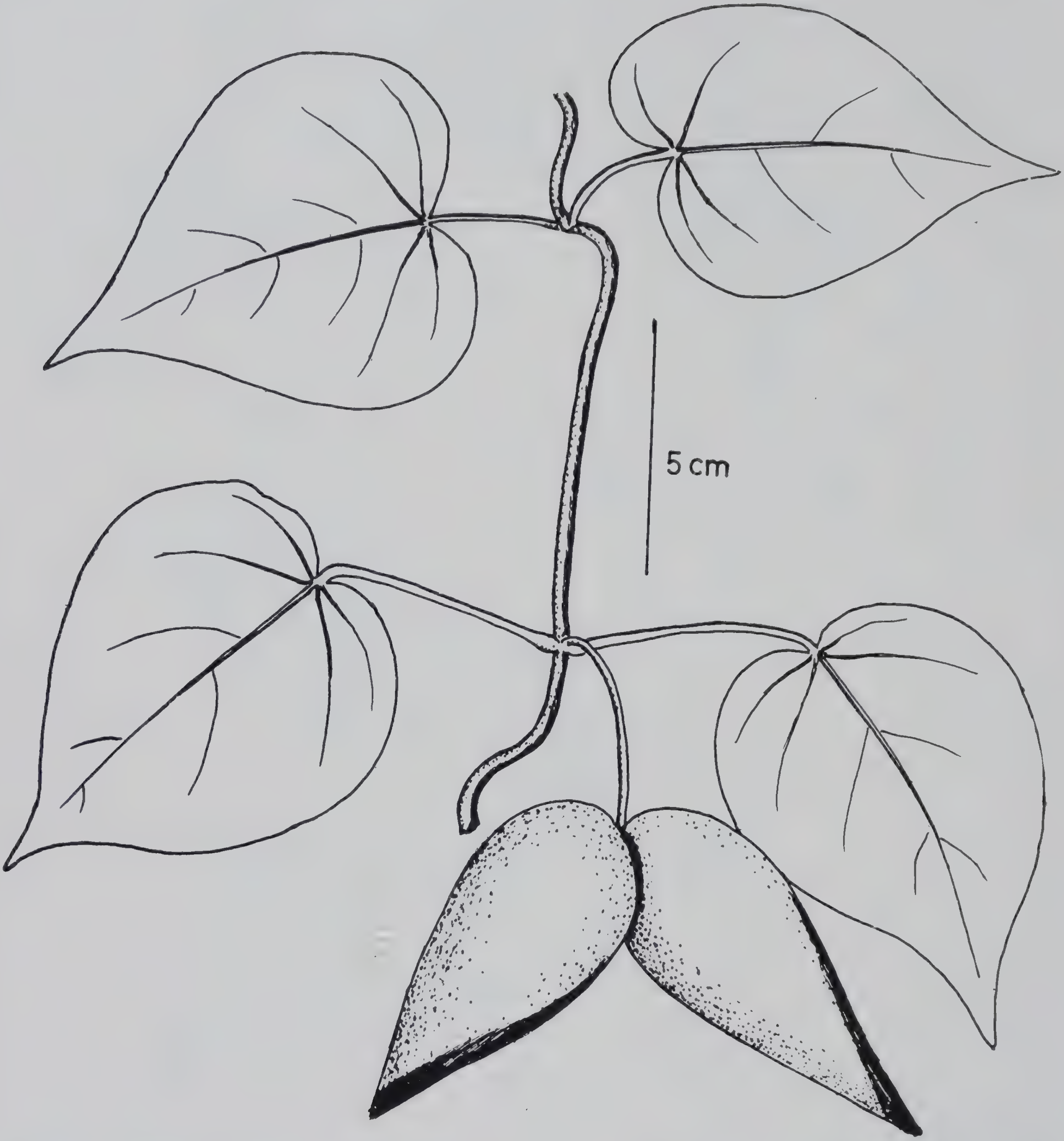
Synonym : *Daemia extensa* R. Br.

Characteristics : A perennial twiner. Young stems slender, with bulbous-based hairs; old stems woody. Leaves opposite, 5 to 12 cm long, petiolate, broadly ovate, with narrowed tip, cordate at base. Flowers greenish-yellow, many on a long, axillary peduncle. Fruits 5 to 7 cm long, paired follicles, slightly curved, covered with soft spines. Seeds ovate, with a tuft of silky, white hairs.

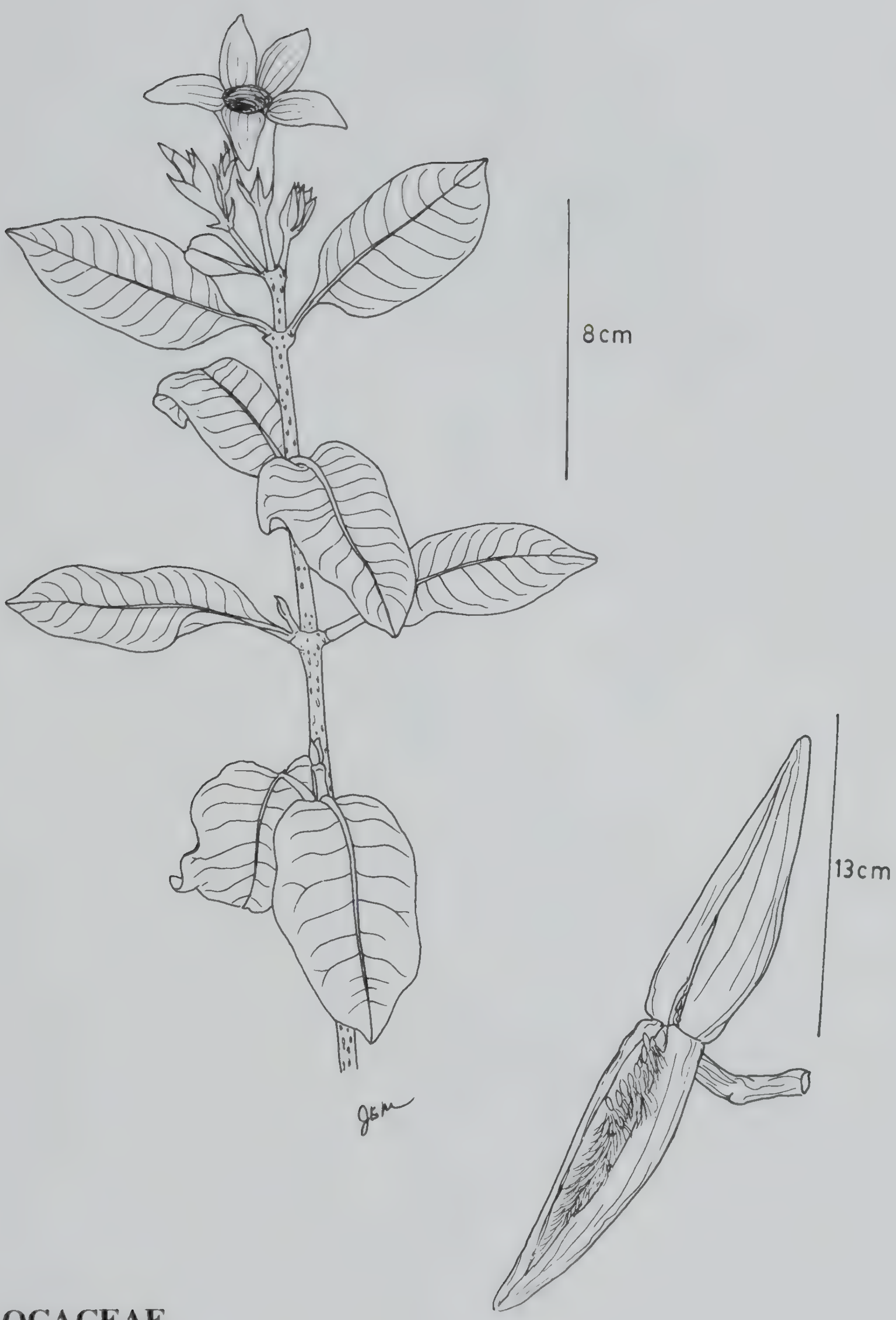
Habitat : Found climbing on small trees and shrubs throughout the uplands.

Fl. & Fr. : September to December.

Reference : FBI. 4:20; FUGP. 2:52; FD. 210; FID. 225; FNER. 240



WATTAKAKA Hassk.
Wattakaka volubilis (L. f.) Stapf
Synonyms : *Dregea volubilis* Benth. ex Hook.
Marsdenia volubilis (L. f.) Cooke
Characteristics : A stout, woody, perennial climber. Leaves broadly ovate, 6 to 10 cm long, glabrous, glandular at the base of midrib. Flowers greenish-yellow, many in drooping, umbellate cymes. Fruits 8 to 9 cm long follicles, usually in pairs. Seeds flat, ovate, with a tuft of long, silky, white hairs.
Habitat : Found climbing on trees throughout the uplands.
Fl : March to May; Fr. : August to February.
Reference : FBI. 4:46; FUGP. 2:56; FD. 219; FID. 227

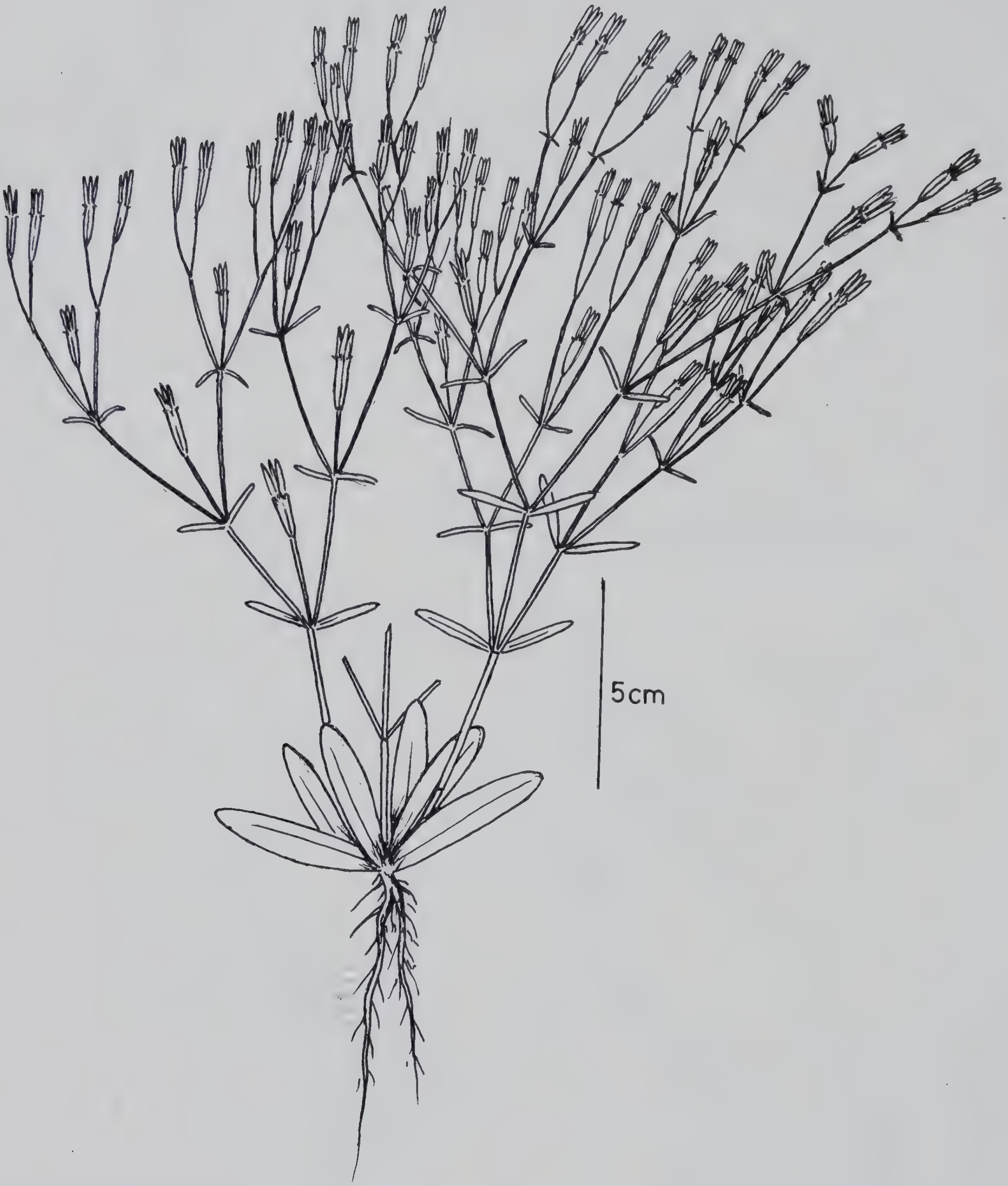


43. PERIPLOCACEAE

CRYPTOSTEGIA R. Br.

Cryptostegia grandiflora R. Br.

Characteristics	:	A large, straggling or climbing shrub with milky latex. Leaves 4 to 8 cm long, opposite, elliptic, glabrous. Flowers purplish-pink, large, showy, in few-flowered terminal cymes. Fruits paired follicles 8 to12 cm long, 3-angled, narrowed to the tip. Seeds glabrous, with silky, white coma.
Habitat	:	Straggling over trees and shrubs throughout the uplands; common.
Fl. & Fr.	:	Most part of the year.
Reference	:	FBI. 4:6; FD. 217; FID. 228; FNER. 238

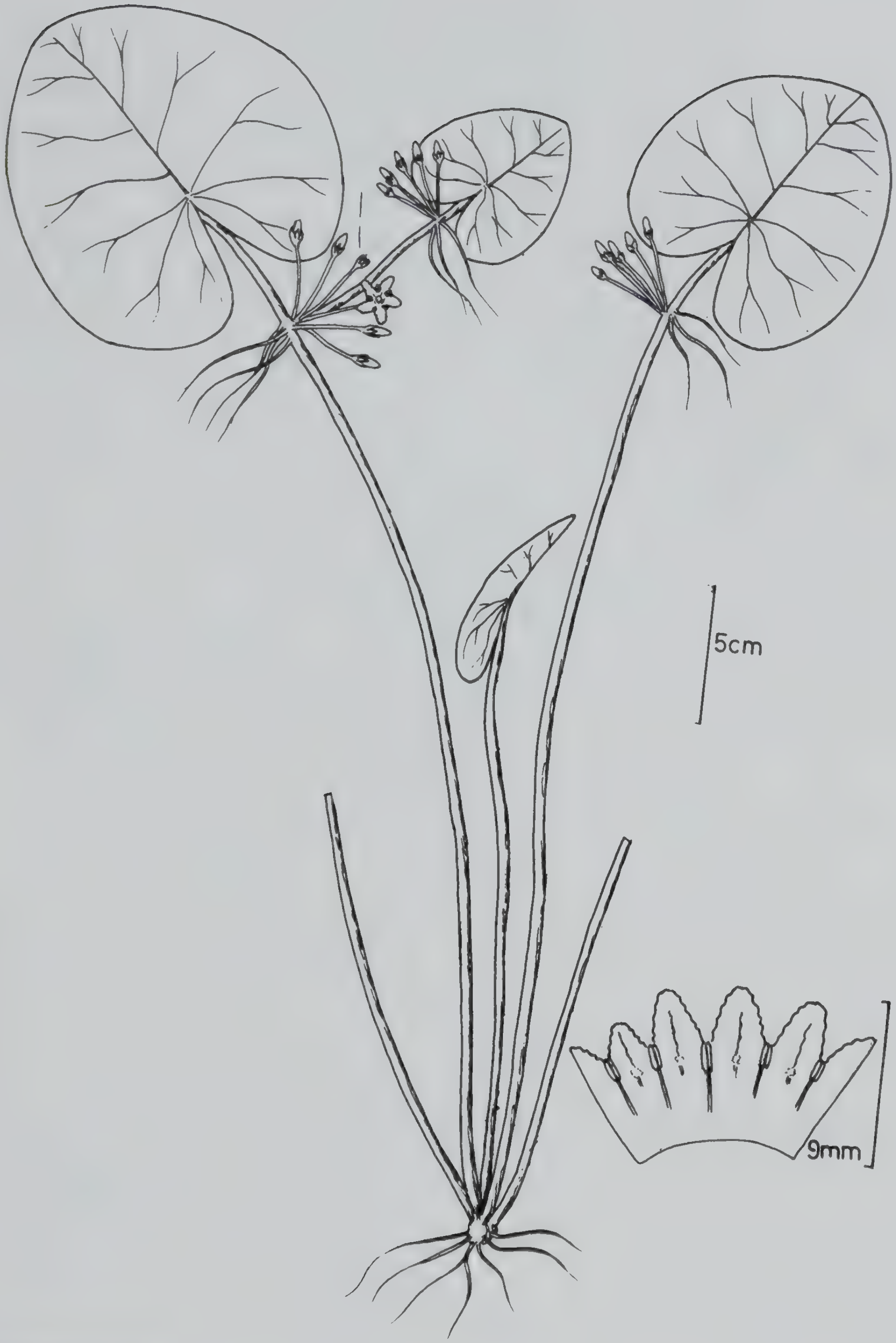


44. GENTIANACEAE

CENTAURIUM Hill

Centaurium centaurioides (Roxb.) Rao & Hem.

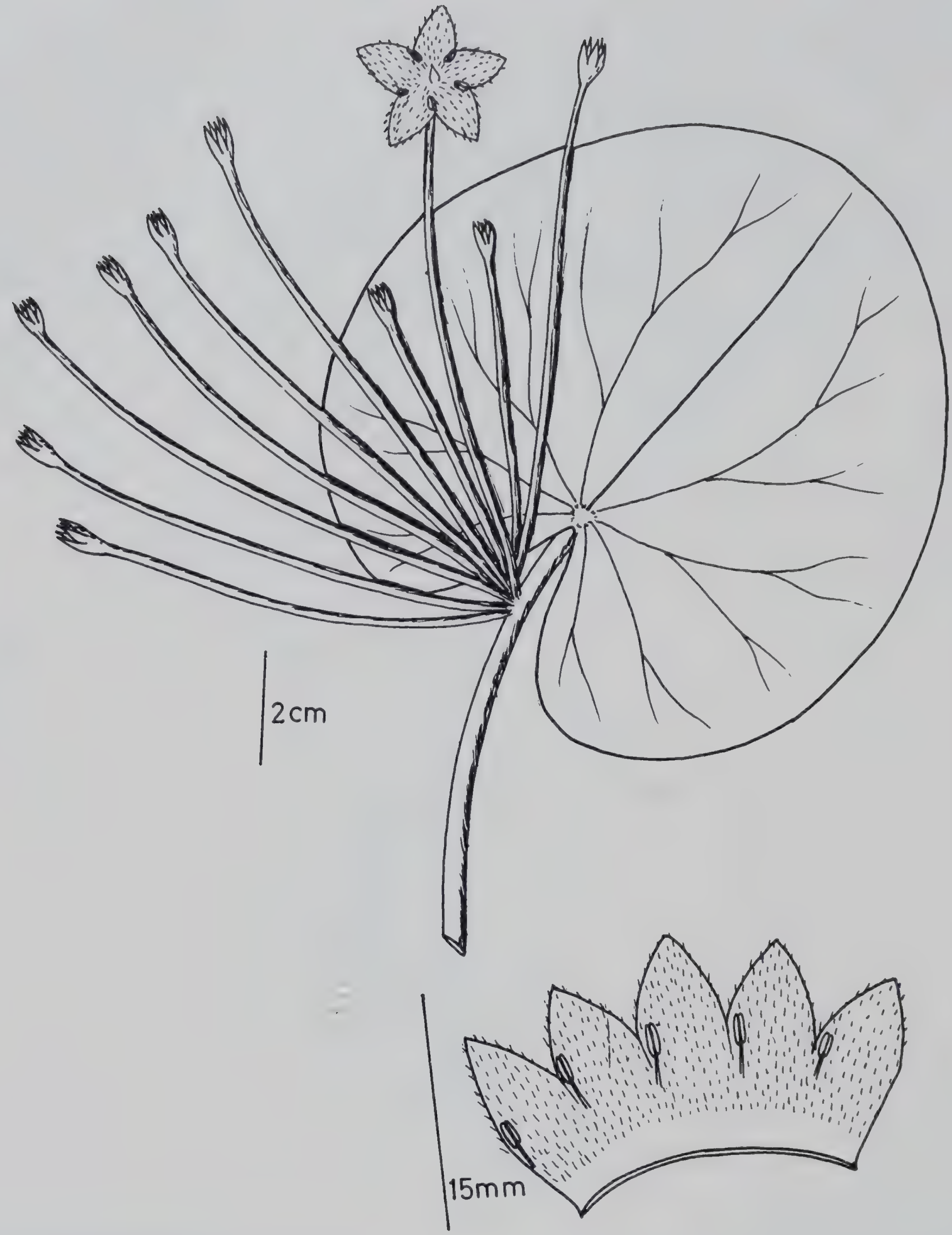
Synonym	:	*Erythraea roxburghii* G. Don
Characteristics	:	An erect, glabrous annual, branching from the base. Basal leaves arranged in a rosette, larger than upper ones. Flowers pinkish, arranged in dichotomous cymes. Fruit a capsule with persistent calyx.
Habitat	:	Wet open areas; not common.
Fl. & Fr.	:	February to May.
Reference	:	FBI. 4:102; FUGP. 2:74; HFD. 312



NYMPHOIDES Hill

Nymphoides cristata (Roxb.) Kuntze

Synonym	:	*Limnanthemum cristatum* Griseb.
Characteristics	:	An aquatic herb with floating leaves. Leaves broadly rounded with cordate base. Flowers white, arranged in clusters at the base of petiole; corolla lobes with a broad crest in the middle. Fruit a subglobose capsule with many seeds.
Habitat	:	Common in inundated areas throughout the park.
Fl. & Fr.	:	Throughout the year with peak periods from October to November and April to May.
Reference	:	FBI. 4:131; FUGP. 2:79; FD. 224



Nymphoides indica (L.) Kuntze

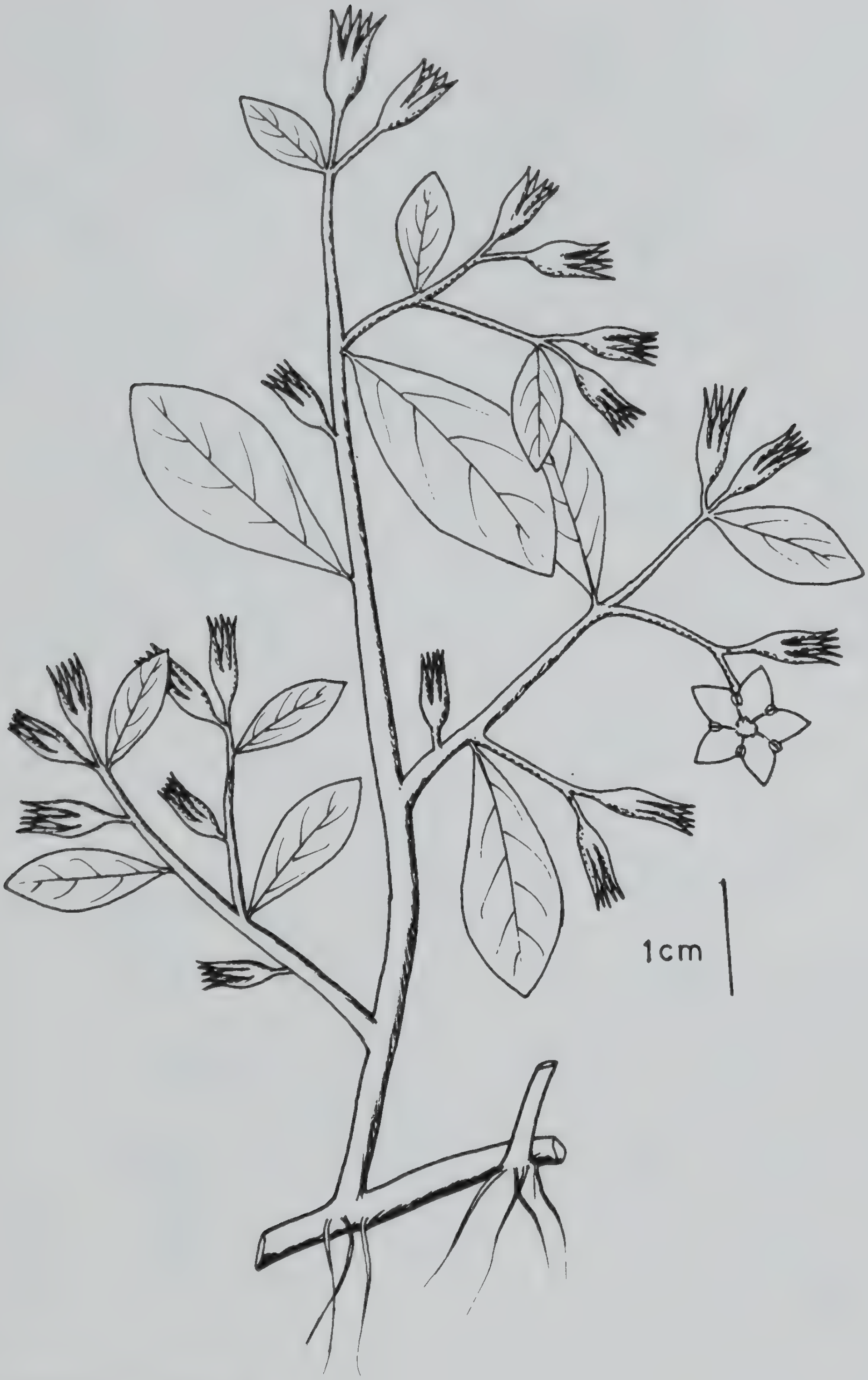
Synonym : *Limnanthemum indicum* Thwaites

Characteristics : An aquatic herb with floating leaves, larger in size than *N. cristata*. Leaves broadly rounded with cordate base. Flowers white with yellow centre, arranged in a cluster at the base of petiole. Corolla clothed with cottony-hairs. Fruit a subglobose capsule with many seeds.

Habitat : Inundated areas; its occurrence is more restricted than *N. cristata.*

Fl. & Fr. : Throughout the year with peak flowering during September to November and March to May.

Reference : FBI. 4:131; FUGP. 2:79; FHD. 475

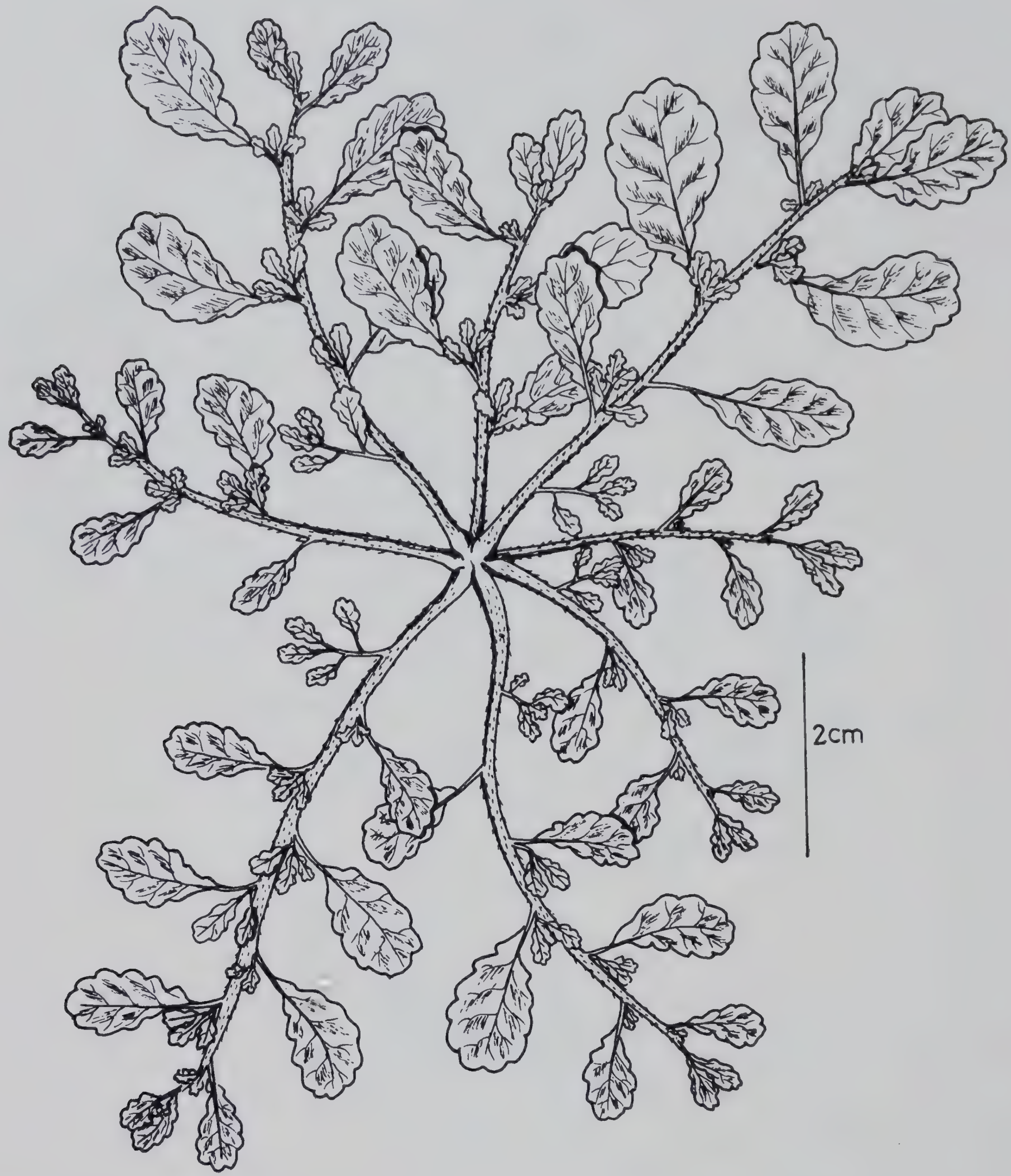


45. HYDROPHYLLACEAE

HYDROLEA L.

Hydrolea zeylanica (L.) Vahl

Characteristics :	An erect to decumbent herb, often rooting at the nodes. Leaves alternate; entire, elliptic-lanceolate, narrowed at both ends; petiole short. Flowers blue, arranged in short terminal racemes; calyx glandular, hairy. Fruit an ovoid to oblong capsule, enclosed by an enlarged, persistent calyx.
Habitat :	Drying, monsoonal pools and moist, open areas.
Fl. & Fr. :	September to November.
Reference :	FBI. 4:133; FUGP. 2:80; FD. 224

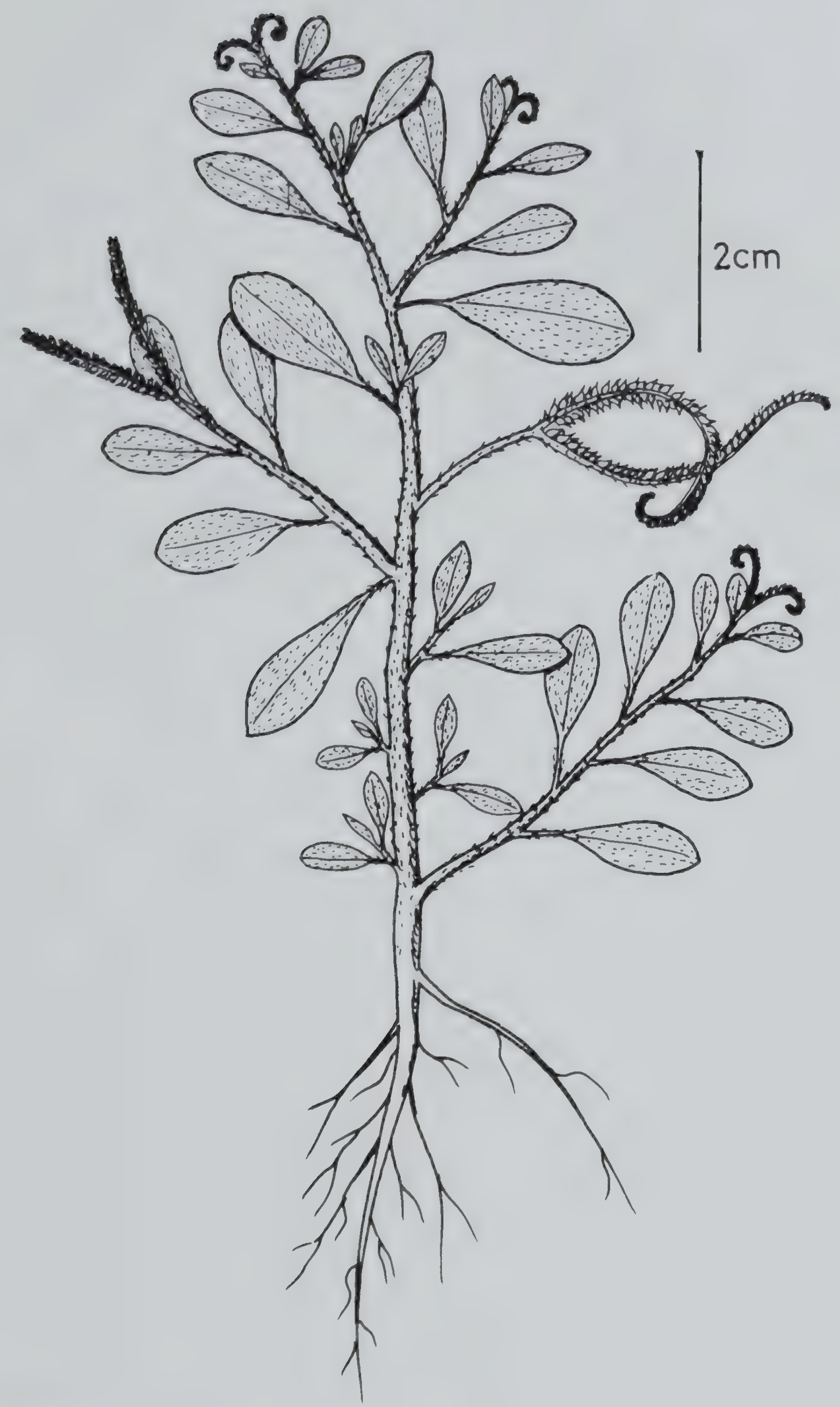


46. BORAGINACEAE

COLDENIA L.

Coldenia procumbens L.

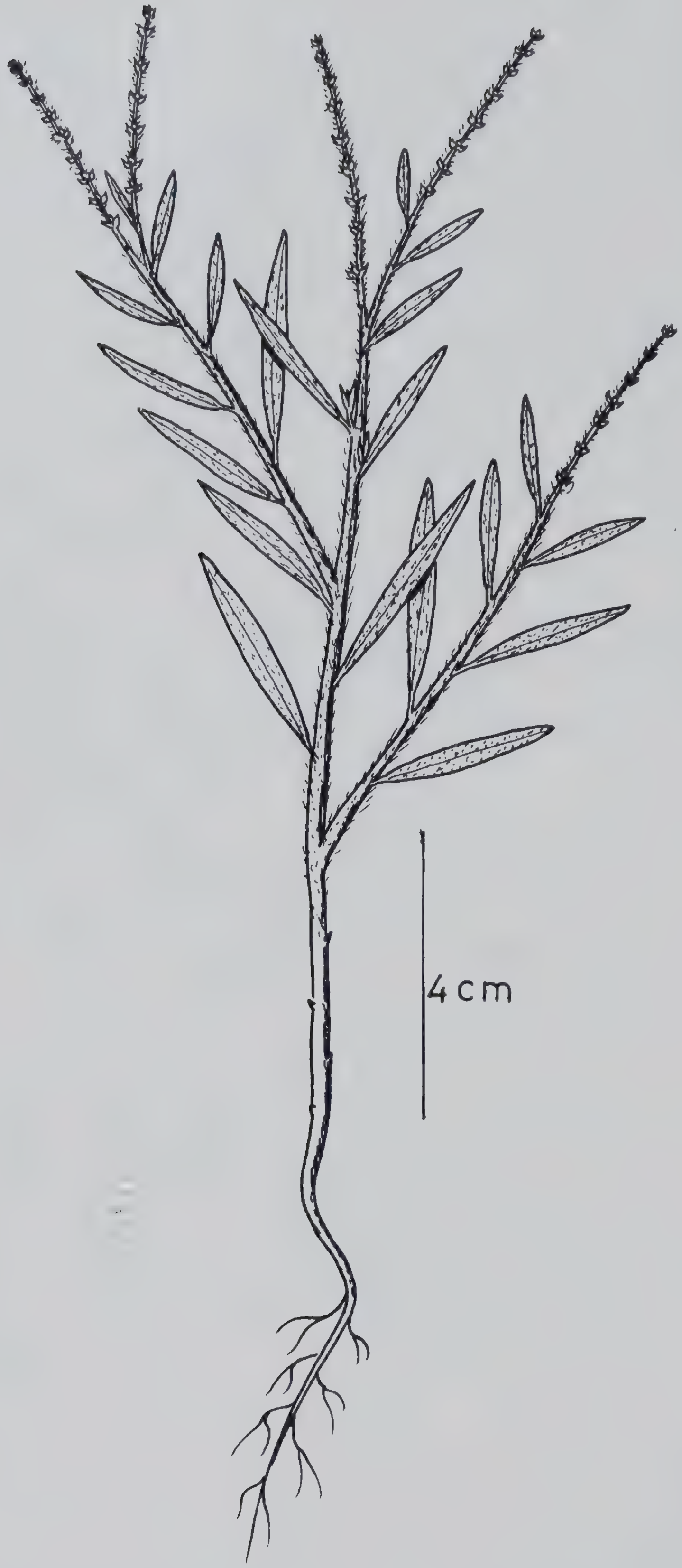
Characteristics :	A deep rooted, prostrate herb with white, silky hairs covering tender parts. Leaves 1 to 2.5 cm long, rounded at apex, narrow at the base, with unequal sides, hairy on surfaces, toothed at margin. Flowers white, solitary in leaf axils. Fruit a 4-celled capsule.
Habitat :	Dried up marshy areas; not common.
Fl. &Fr. :	June to August.
Reference :	FBI. 4:144; FUGP. 2:88; FD. 225; FID. 232; FNER. 247



HELIOTROPIUM L.

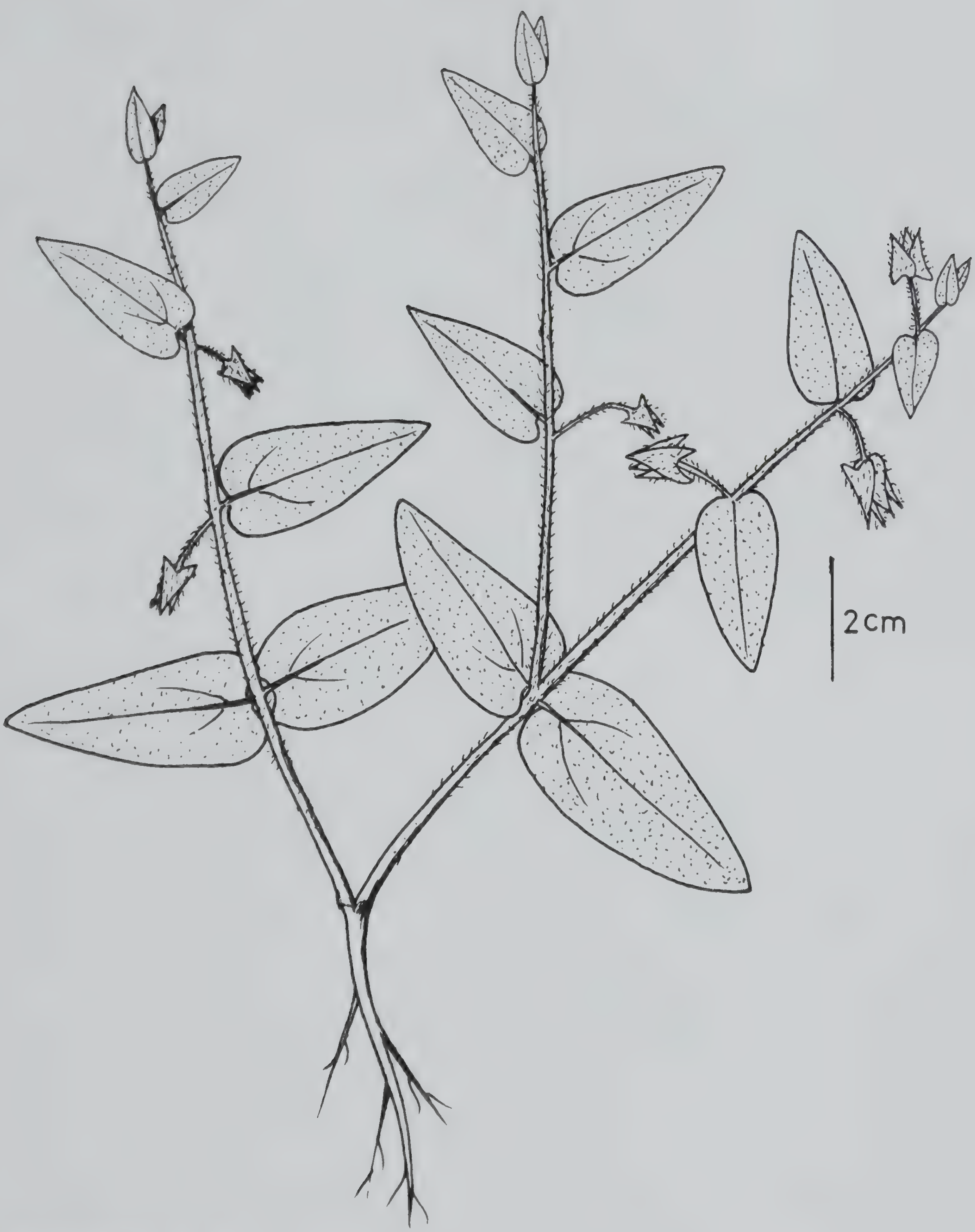
Heliotropium ovalifolium Forsk.

Characteristics :	An erect, much branched, hairy, perennial herb. Leaves 1.5 to 2.5 cm long, elliptic or obovate, narrowed to the base, hairy. Flowers white, arranged in spikes. Spikes occur in pairs giving the inflorescence a fork-like appearance. Fruit a 4-celled capsule, with persistent, enlarged, hairy calyx.
Habitat :	Moist sandy soil throughout the open areas in uplands.
Fl. & Fr. :	July to September.
Reference :	FBI. 4:150; FUGP. 2:92; FID. 235; FNER. 252



Heliotropium strigosum Willd.

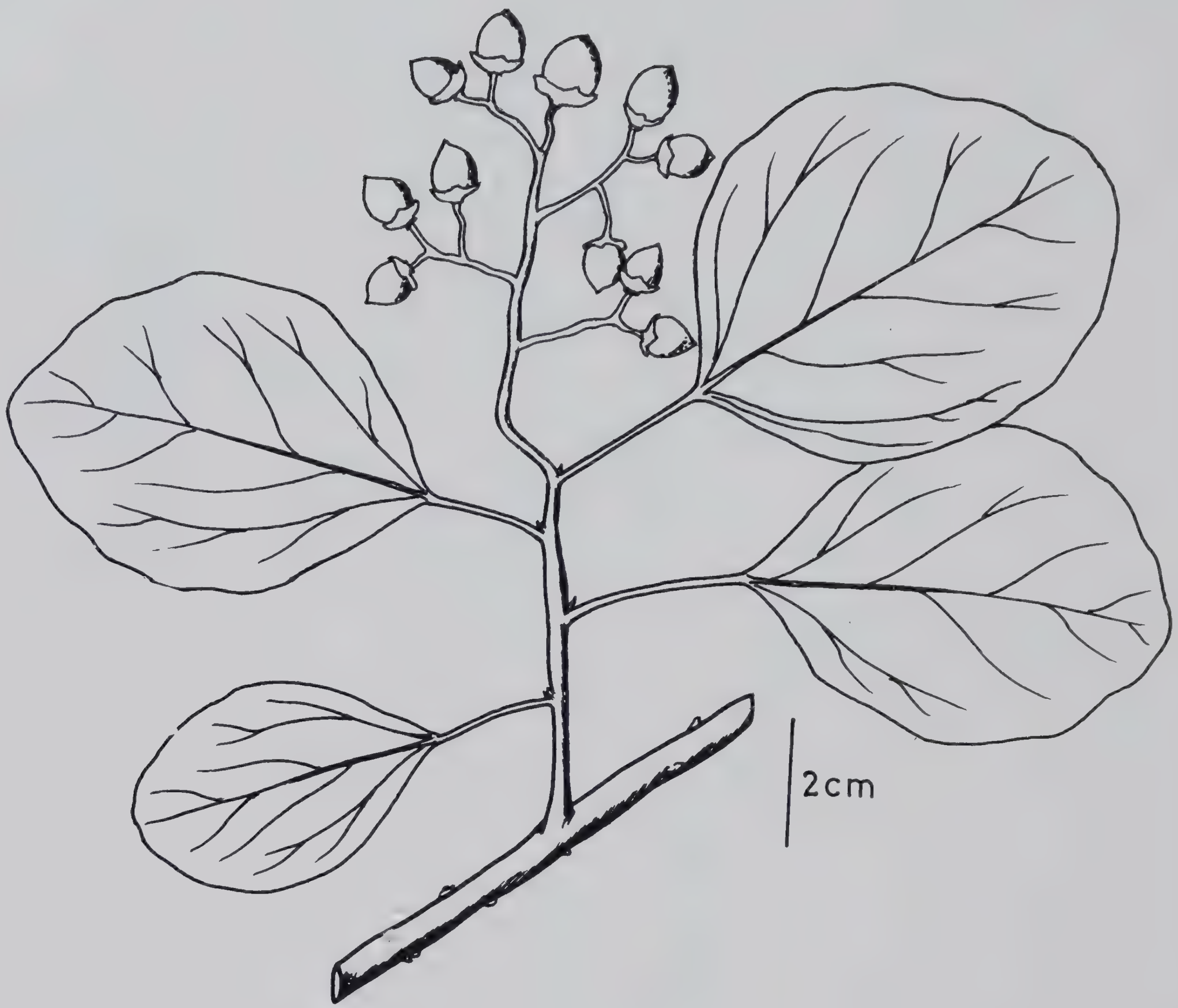
Characteristics	:	A small, erect to prostrate, hairy, perennial herb with woody base. Leaves linear, with hairs on surfaces. Flowers white, arranged in terminal racemes. Fruit a 4-celled capsule, with an enlarged, persistent calyx.
Habitat	:	Moist sandy soil in open areas throughout the uplands; not common.
Fl. & Fr.	:	August to November.
Reference	:	FBI. 4:151; FUGP. 2:93; FD. 226; FNER. 253



TRICHODESMA R. Br.

Trichodesma amplexicaule Roth

Characteristics	:	An erect to diffuse, branching herb with stiff hairs throughout. Leaves 3 to 8 cm long, opposite, sessile, ovate or lanceolate; upper surface with stiff hairs arising from white, circular tubercles. Flowers bluish, solitary in leaf axils or arranged in few-flowered, terminal racemes. Fruit a 4-celled capsule with a slightly enlarged, hairy, persistent calyx.
Habitat	:	Found in moist, humus soil near Keoladeo Temple; not common.
Fl. & Fr.	:	September to October.
Reference	:	FBI. 4:153; FD. 226; FID. 239; FNER. 256



47. EHRETIACEAE

CORDIA L.

Cordia dichotoma Forst. f.

Synonym : *C. obliqua* Willd.

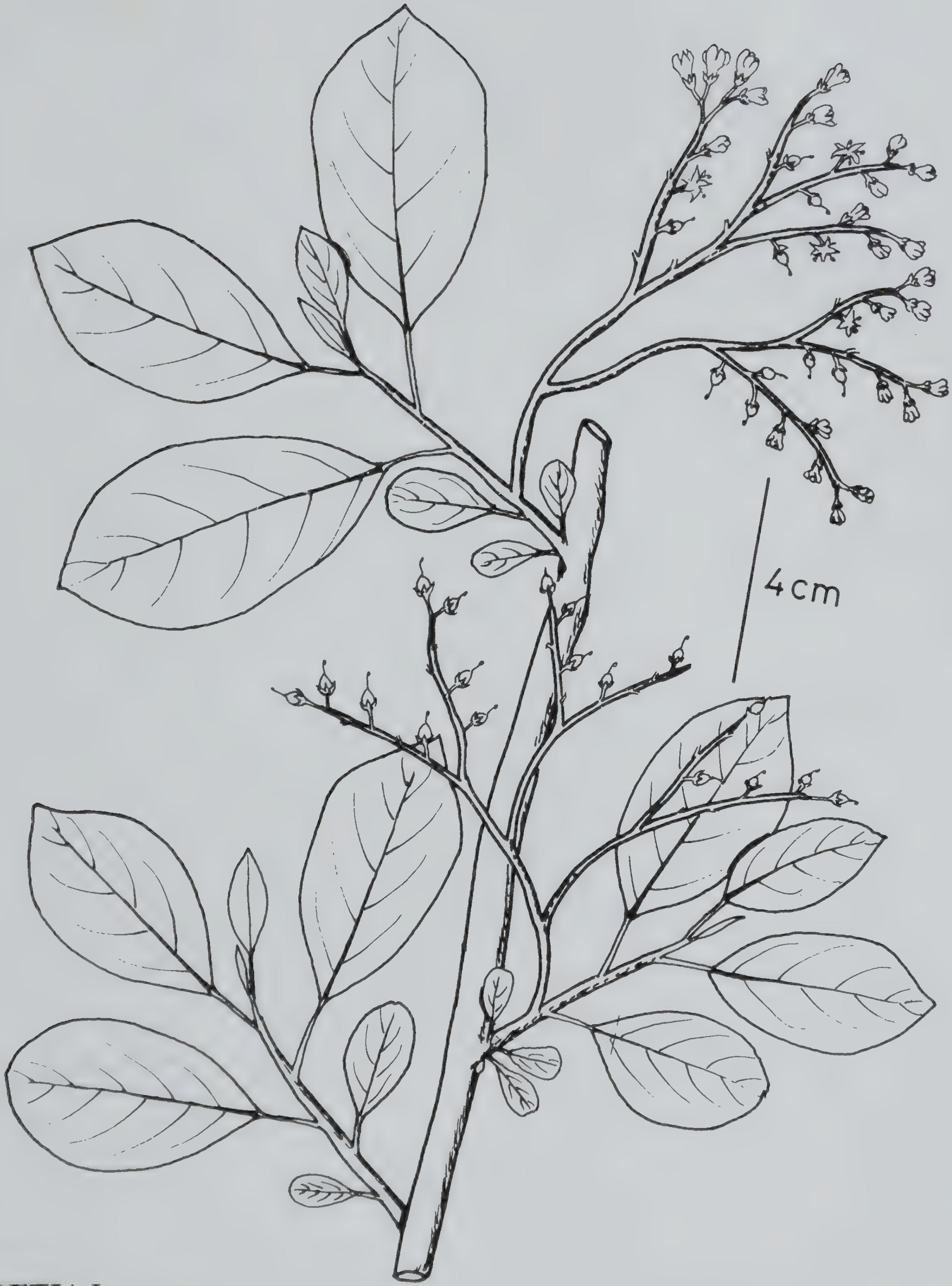
Local name : Nisoda

Characteristics : A medium sized, deciduous tree. Leaves elliptic to ovate. Flowers white, arranged in axillary or terminal cymes. Fruit an egg-shaped drupe with a persistent calyx.

Habitat : Found along roadsides.

Fl. & Fr. : April to June.

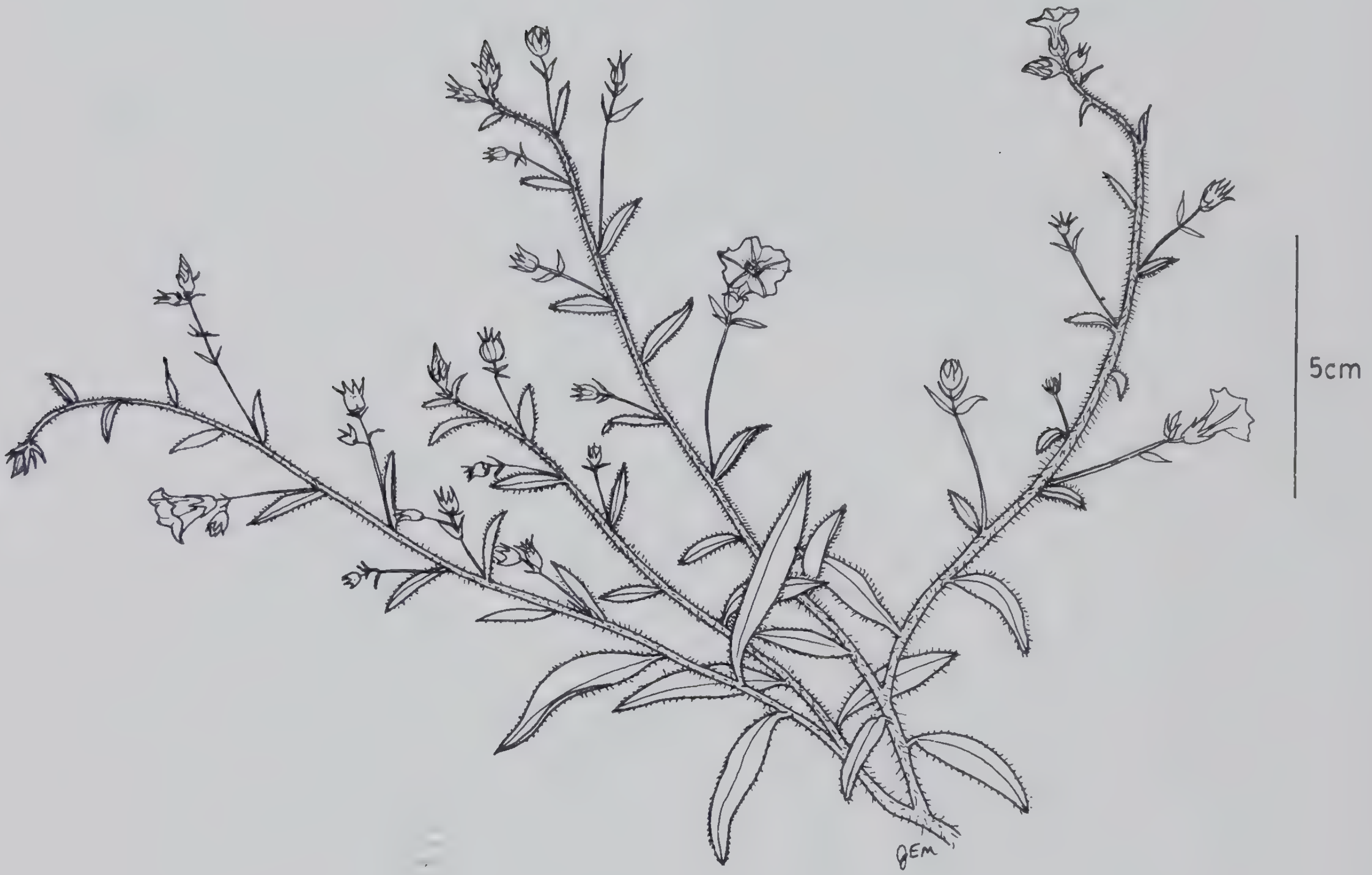
Reference : FBI. 4:137; FD. 227; FNER. 248



EHRETIA L.

Ehretia aspera Roxb.

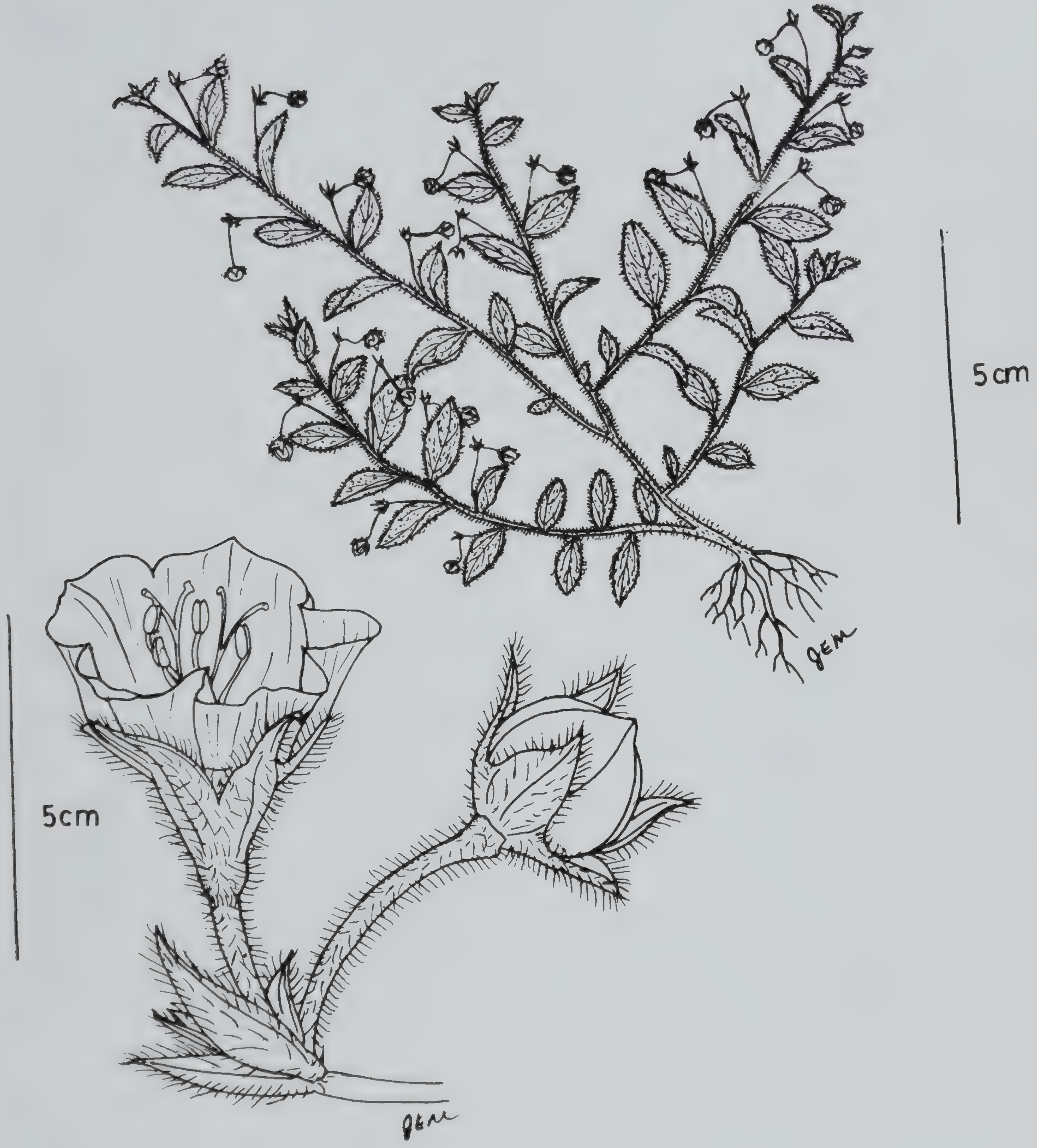
Local name	:	Apho
Characteristics	:	A large shrub with greyish bark. Leaves variable in shape, usually obovate or elliptic. Flowers white, arranged in dense, corymbose cymes. Fruit a globose drupe.
Habitat	:	Found along roadsides; not common.
Fl. & Fr.	:	April to June.
Reference	:	FUGP. 2:87; FD. 229; FID. 241



48. CONVOLVULACEAE

CONVOLVULUS L.

Convolvulus microphyllus Sieb. ex Spreng.
Synonym : *C. pluricaulis* Choisy
Characteristics : A deep rooted, prostrate, hairy, perennial herb, branching from the base. Leaves 1.5 to 6.5 cm long, linear, subsessile. Flowers white, solitary in leaf axils, or in 2 to 3 flowered axillary cymes; corolla funnel-shaped. Fruit a 4-seeded, globose capsule.
Habitat : Common in dry, sandy soil.
Fl. & Fr. : September to December.
Reference : FBI. 4:218; FUGP. 2:105; FD. 239; FID. 247



EVOLVULUS L.

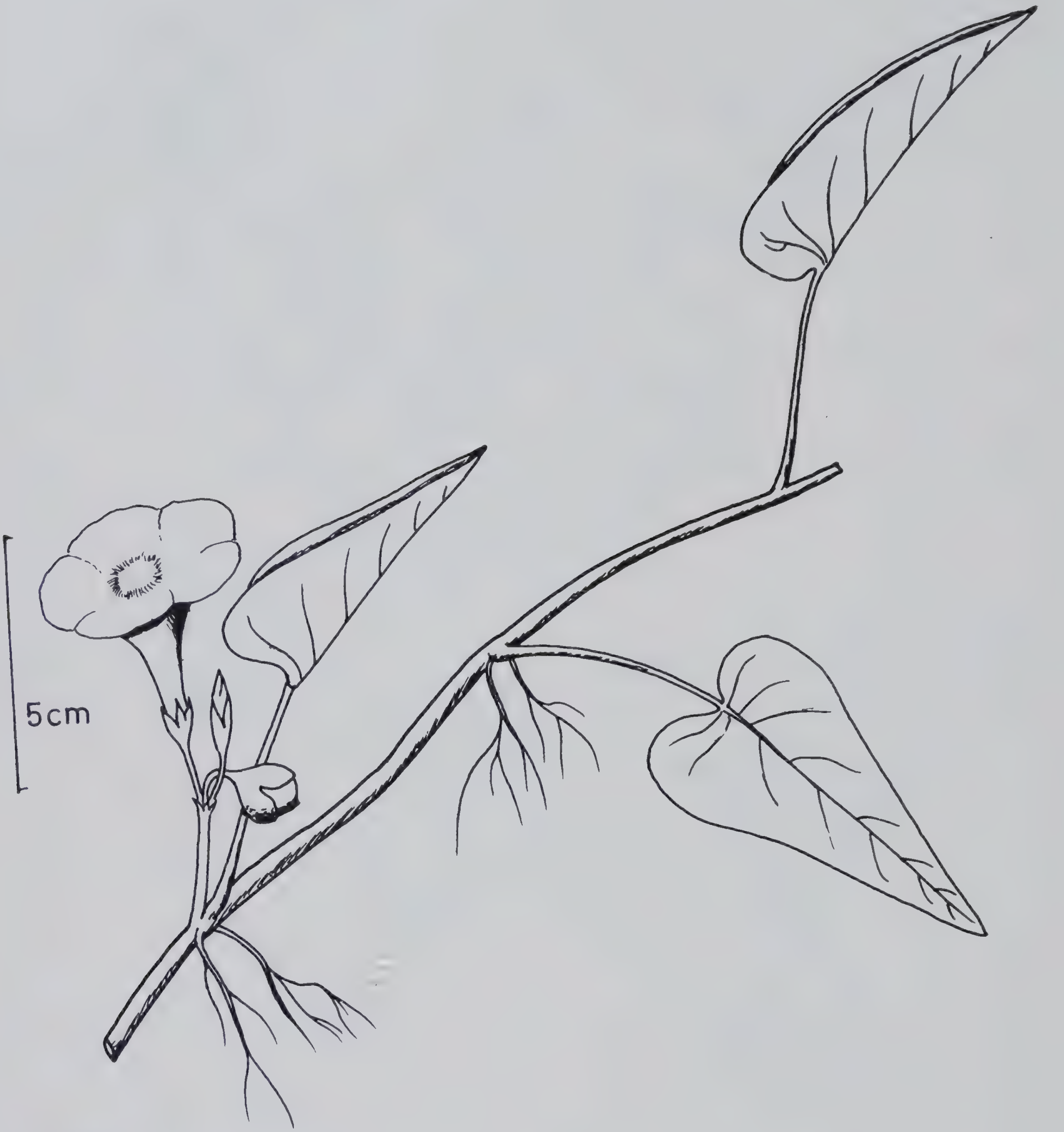
Evolvulus alsinoides (L.) L.

Characteristics : An ascending to prostrate, branched, hairy herb. Leaves 1 to 2.5 cm long, shortly petiolate, hairy on surfaces. Flowers bluish, 1 to 3, arranged on a common, slender, axillary peduncle. Fruit a 4-seeded, glabrous capsule.

Habitat : Moist, sandy soil; not common.

Fl. & Fr. : August to November.

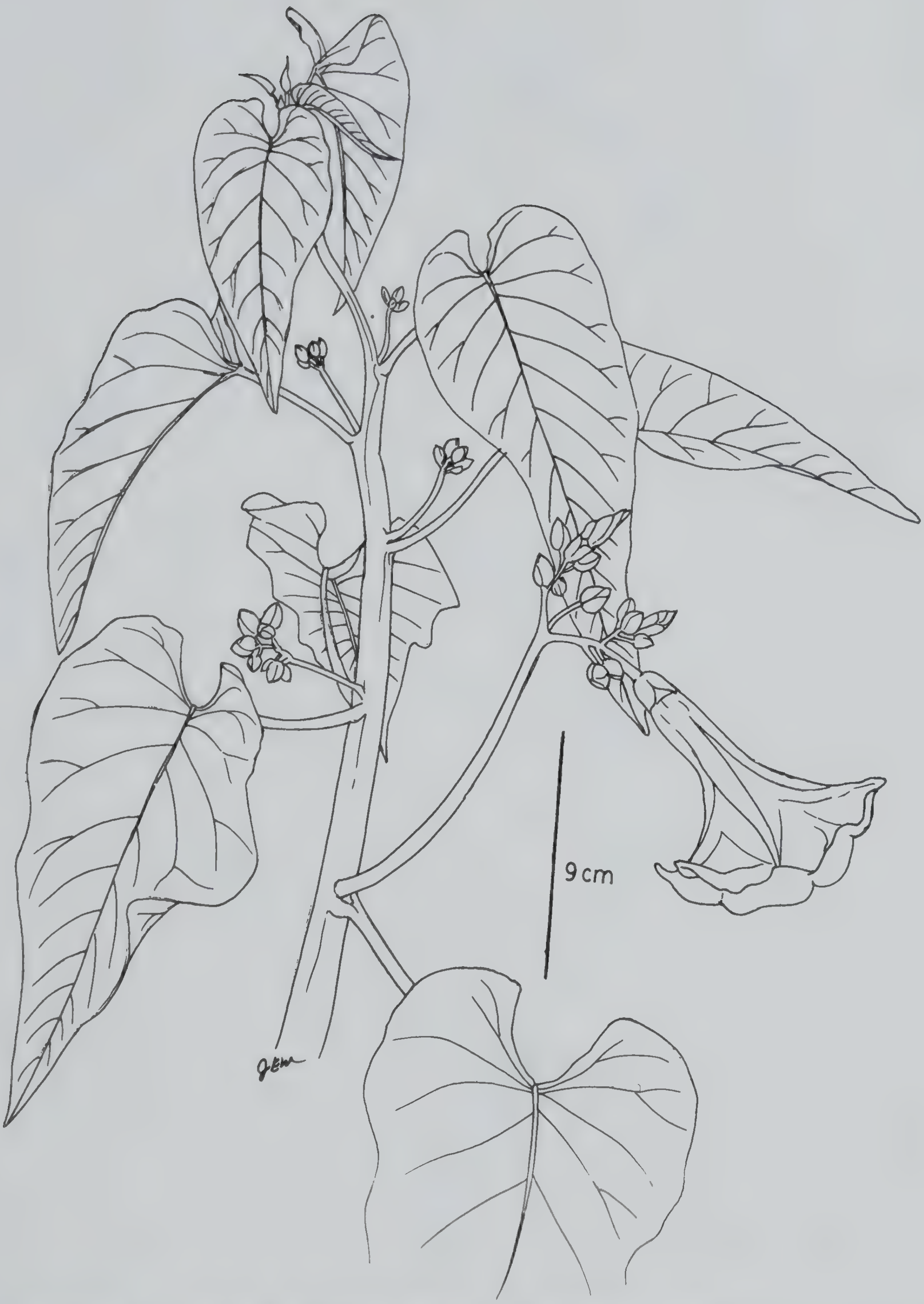
Reference : FBI. 4:220; FUGP. 2:104; FD. 230; FID. 250; FNER. 263



IPOMOEA L.

Ipomoea aquatica Forsk.

Synonym : *I. reptans* (L.) Poir.
Local name : Nari
Characteristics : An aquatic, perennial herb creeping in mud or floating on water surface. Stems hollow, commonly rooting at the nodes. Leaves alternate, usually ovate-lanceolate. Flowers rosy-pink, 1 to 6 on a common, long, axillary peduncle. Fruit a 4-seeded, globose capsule.
Habitat : Abundant throughout the aquatic area.
Fl. & Fr. : Most of the year with peak periods from April to May and October to November.
Reference : FBI. 4:210; FUGP. 2:114; FD. 234; FID. 252; FNER. 266



Ipomoea carnea Jacq. sub sp. **fistulosa** (Mart. ex Choisy) Austin

Synonym : *I. fistulosa* Mart. ex Choisy

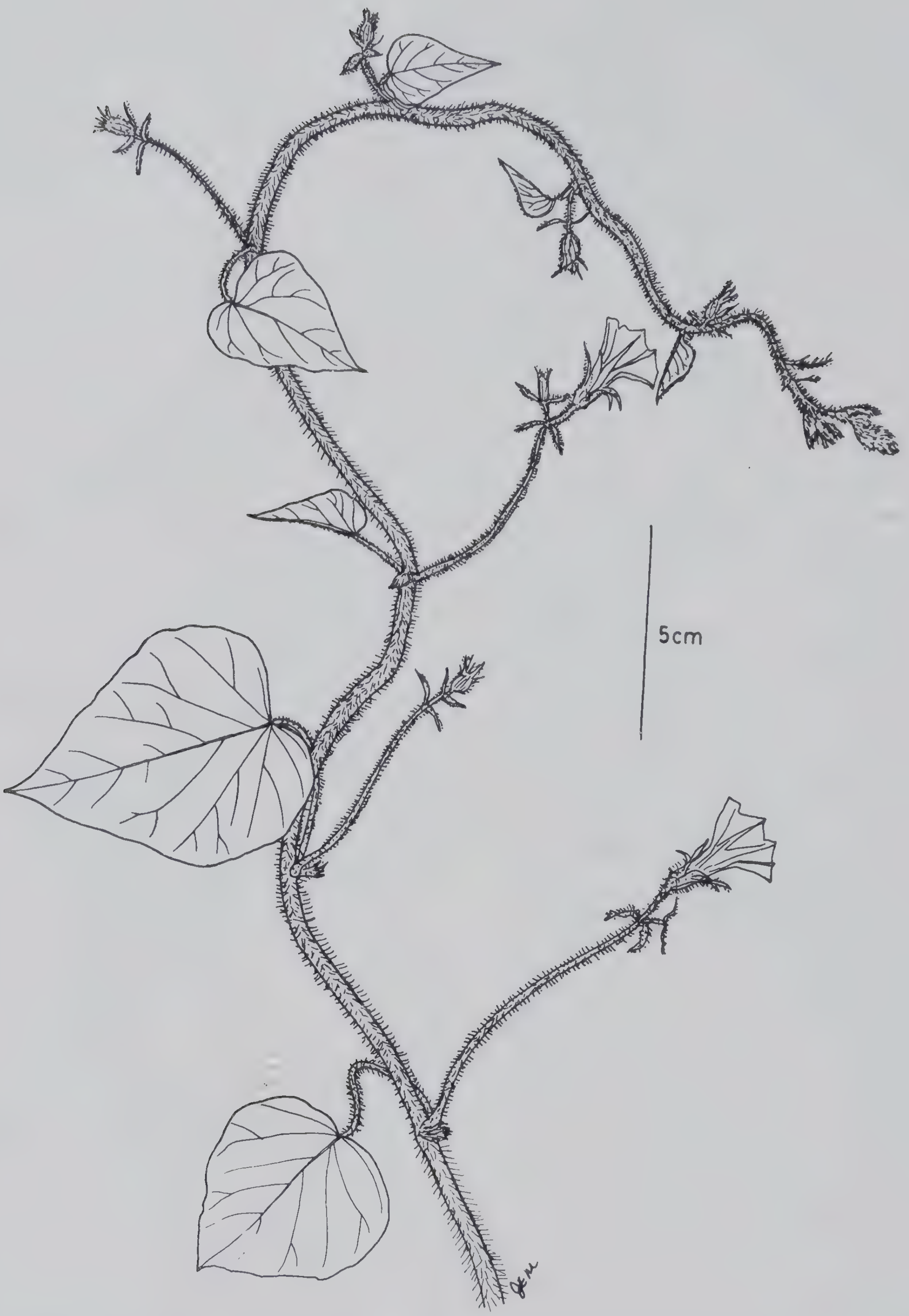
Local name : Bilaiti Aak

Characteristics : An erect to ascending shrub with thick, fistulous stems. Leaves ovate with tapering apex. Flowers rosy, showy, funnel-shaped, arranged in axillary cymes. Fruit an egg- shaped capsule with 4 hairy seeds.

Habitat : On margins of aquatic areas; can be seen in Ghana Canal near Sapan Mori.

Fl. & Fr. : Throughout the year.

Reference : FD. 234; FID. 255; FNER. 269; FWP. 126:40



Ipomoea dichroa (Roem. & Schult.) Choisy

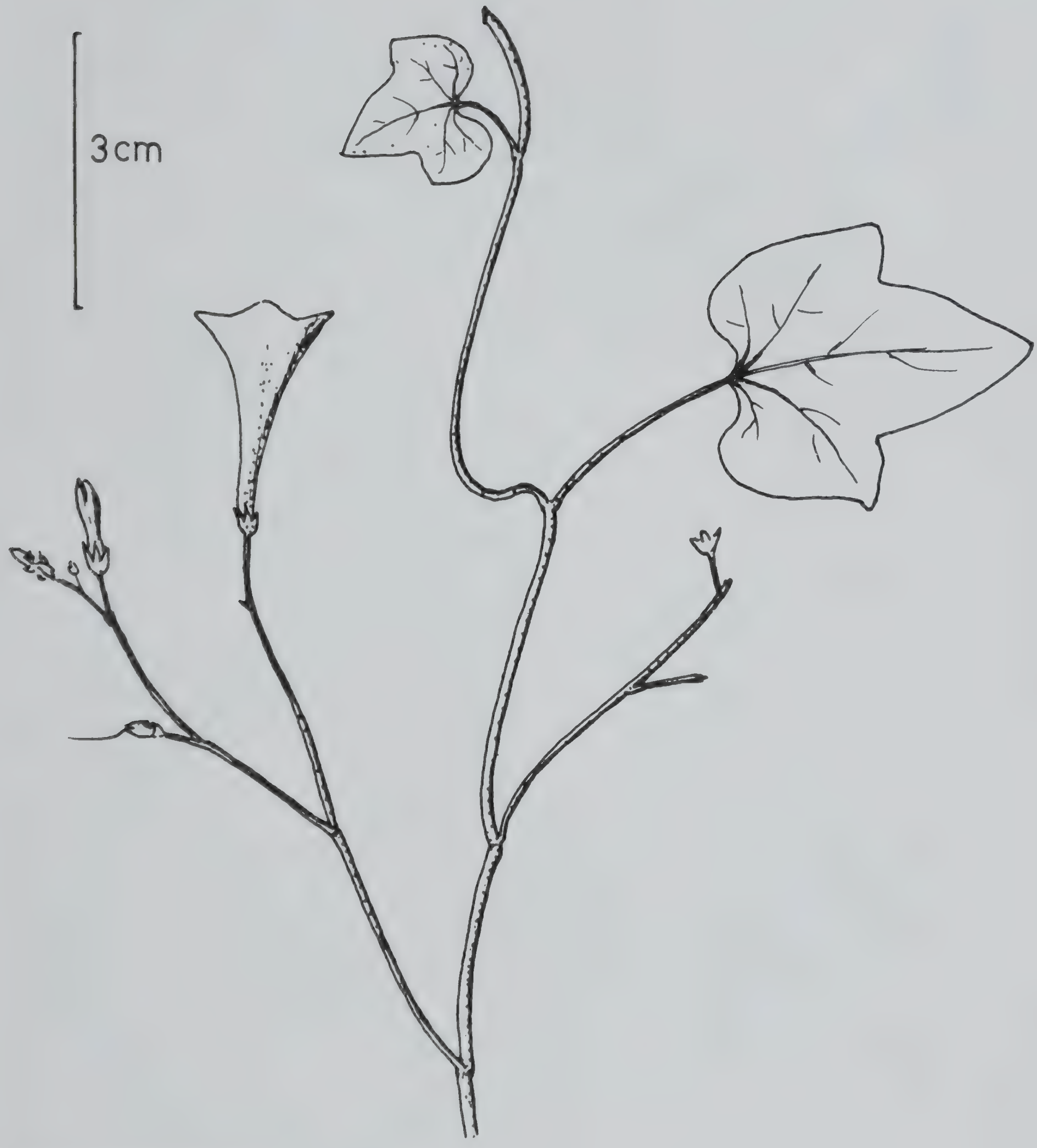
Synonym : *I. pilosa* Sweet

Characteristics : A large twiner clothed with bristly hairs. Leaves 5 to 10 cm long, broadly ovate, tapering at the tip; upper surface and petioles hairy; lower surface woolly. Flowers purplish, arranged in axillary cymes. Bracteoles persistent, prominent. Fruit a globose, sparsely hairy capsule. Seeds with short hairs interspersed with long hairs.

Habitat : Found climbing on small trees and shrubs throughout the uplands.

Fl. & Fr. : September to November.

Reference : FBI. 4:213; FUGP. 2:114; FD. 236; FID. 253; FNER. 267



Ipomoea hederifolia L.

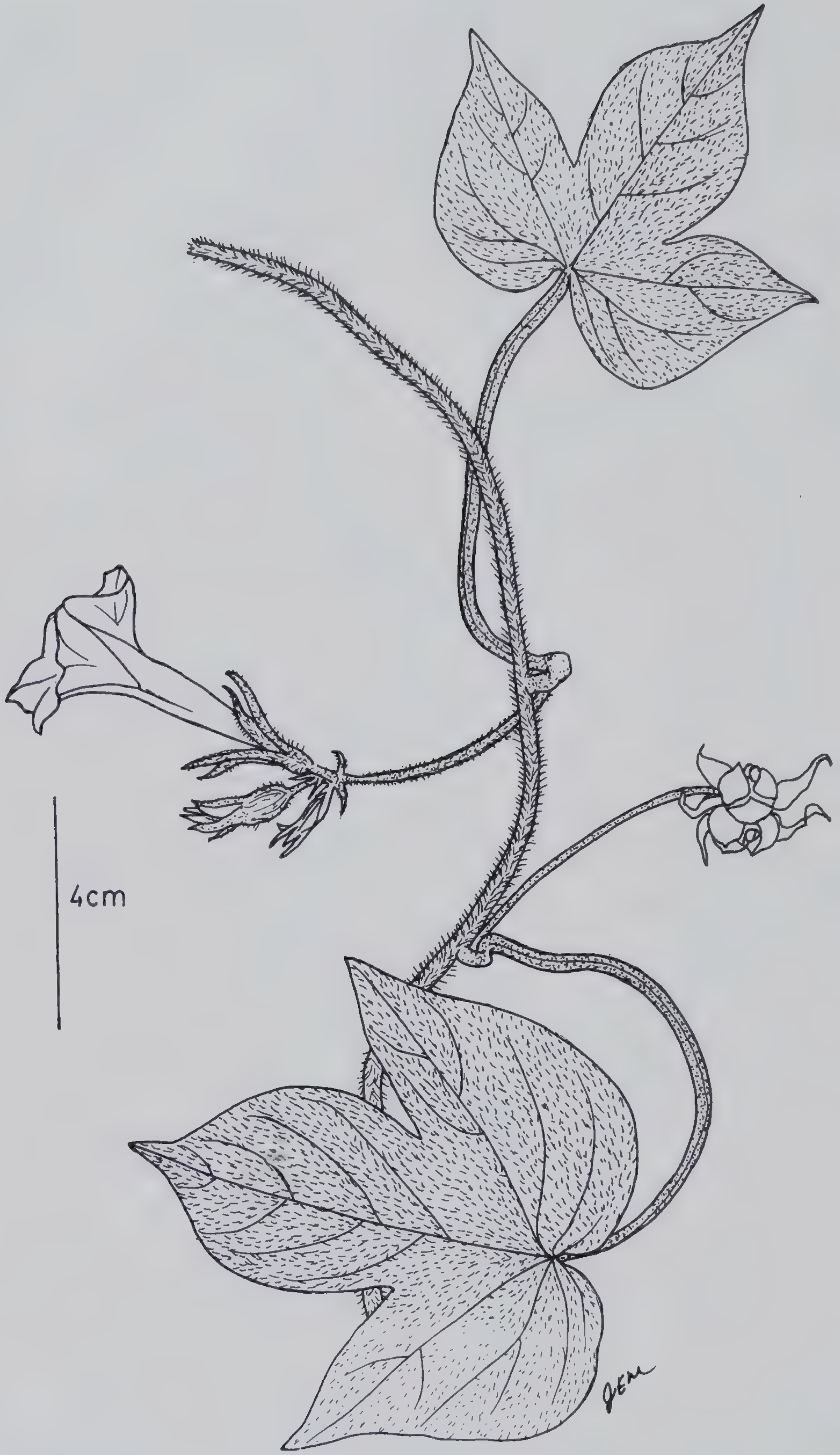
Synonyms : *I. angulata* Lamk.
Quamoclit phoenicia Choisy

Characteristics : An annual twiner with slightly angular stems. Leaves 3 to 9 cm long, ovate, tapering at apex, cordate at base; margin entire, coarsely toothed or 3-lobed. Flowers red, arranged in few-flowered cyme. Fruit a globular, glabrous capsule with persistent calyx. Seeds 4, black, hairy.

Habitat : Found in moist soil, climbing on small trees and shrubs throughout the uplands.

Fl. & Fr. : August to September.

Reference : FUGP. 2:122; FD. 233; FID. 255



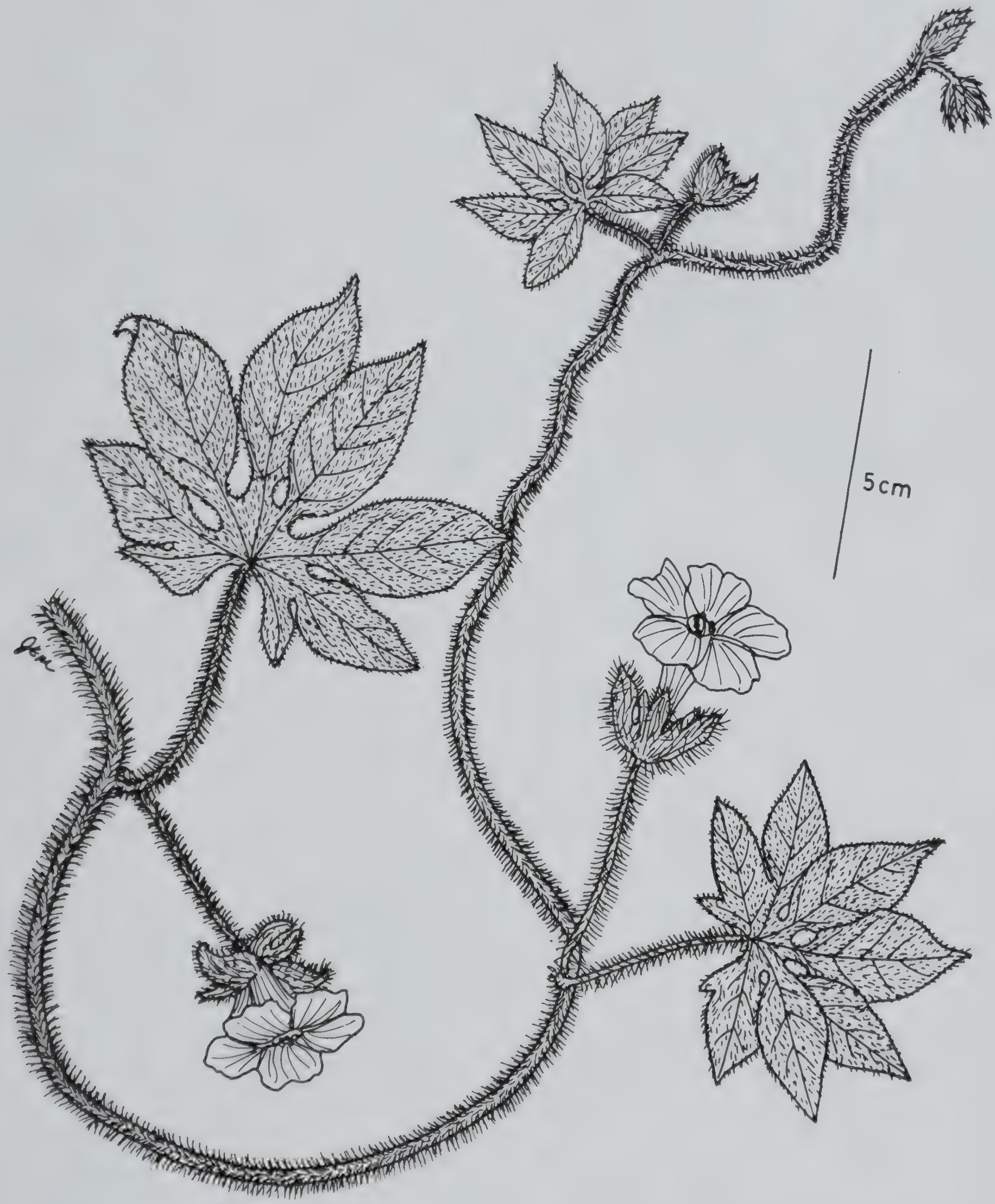
Ipomoea nil (L.) Roth

Characteristics : A hairy, annual twiner. Leaves 4 to 12 cm long, 3-lobed. Flowers light blue, solitary in leaf axils or in few-flowered, umbellate cyme; corolla funnel-shaped. Fruit a globose capsule with enlarged, persistent calyx. Seeds 6, black, hairy.

Habitat : Found climbing on small trees and shrubs throughout the uplands; common after monsoon season.

Fl. & Fr. : August to October.

Reference : FBI. 4: 199; FUGP. 2: 116; FD. 238; FID. 257; FNER. 270



Ipomoea pes-tigridis L.

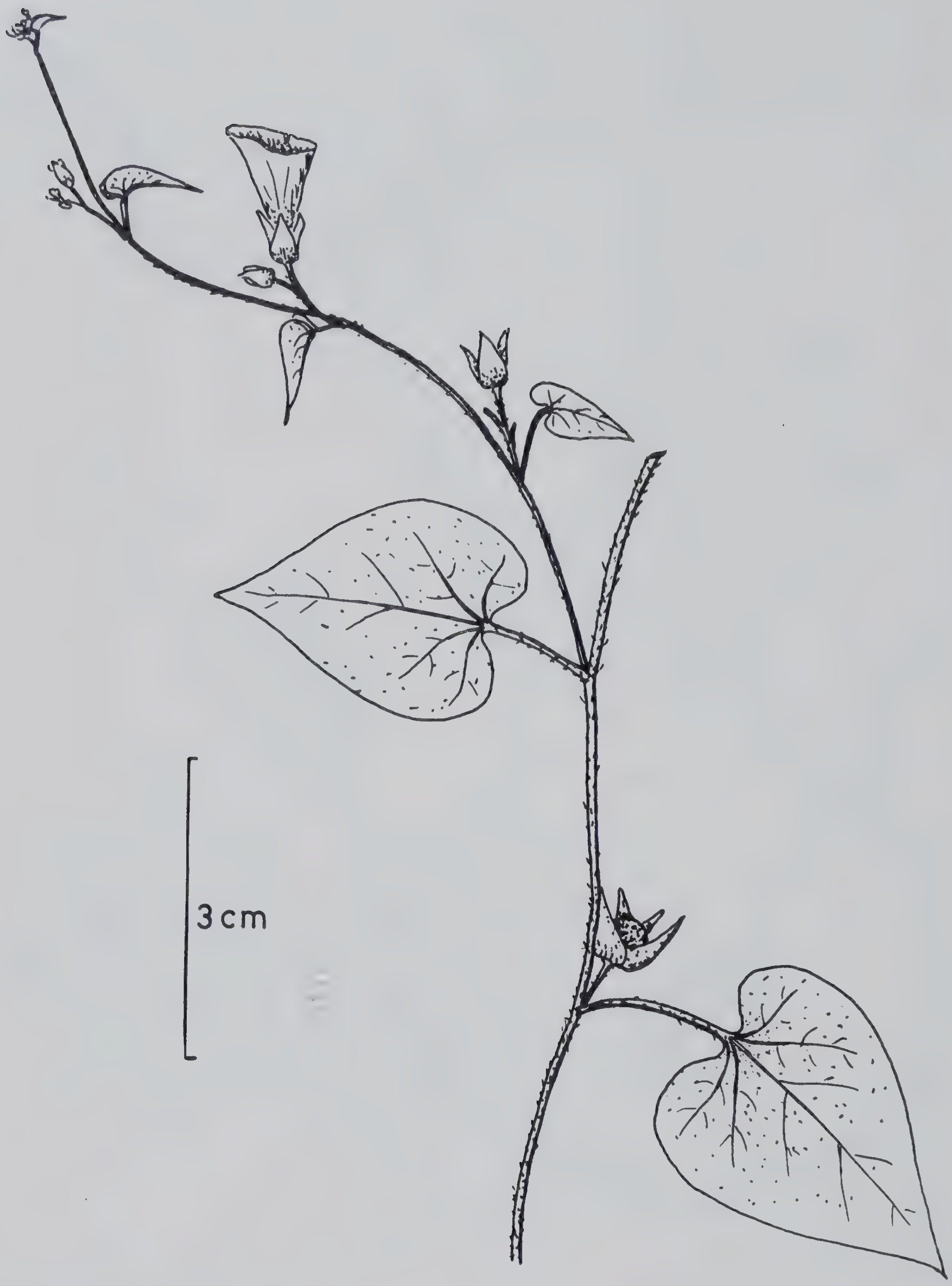
Local name : Ghiabathi

Characteristics : A densely hairy, twining annual. Leaves palmately 5 to 7-lobed, hairy on surfaces. Flowers white, in axillary, few flowered heads on long, hairy peduncles; opening in the afternoon. Fruit a glabrous capsule hidden in the persistent calyx. Seeds white; hairy.

Habitat : Common after the monsoon, spreading on the ground or climbing on shrubs and small trees throughout the uplands.

Fl. & Fr. : September to November.

Reference : FBI. 4:204; FUGP. 2:116; FD. 237; FID. 258; FNER. 271



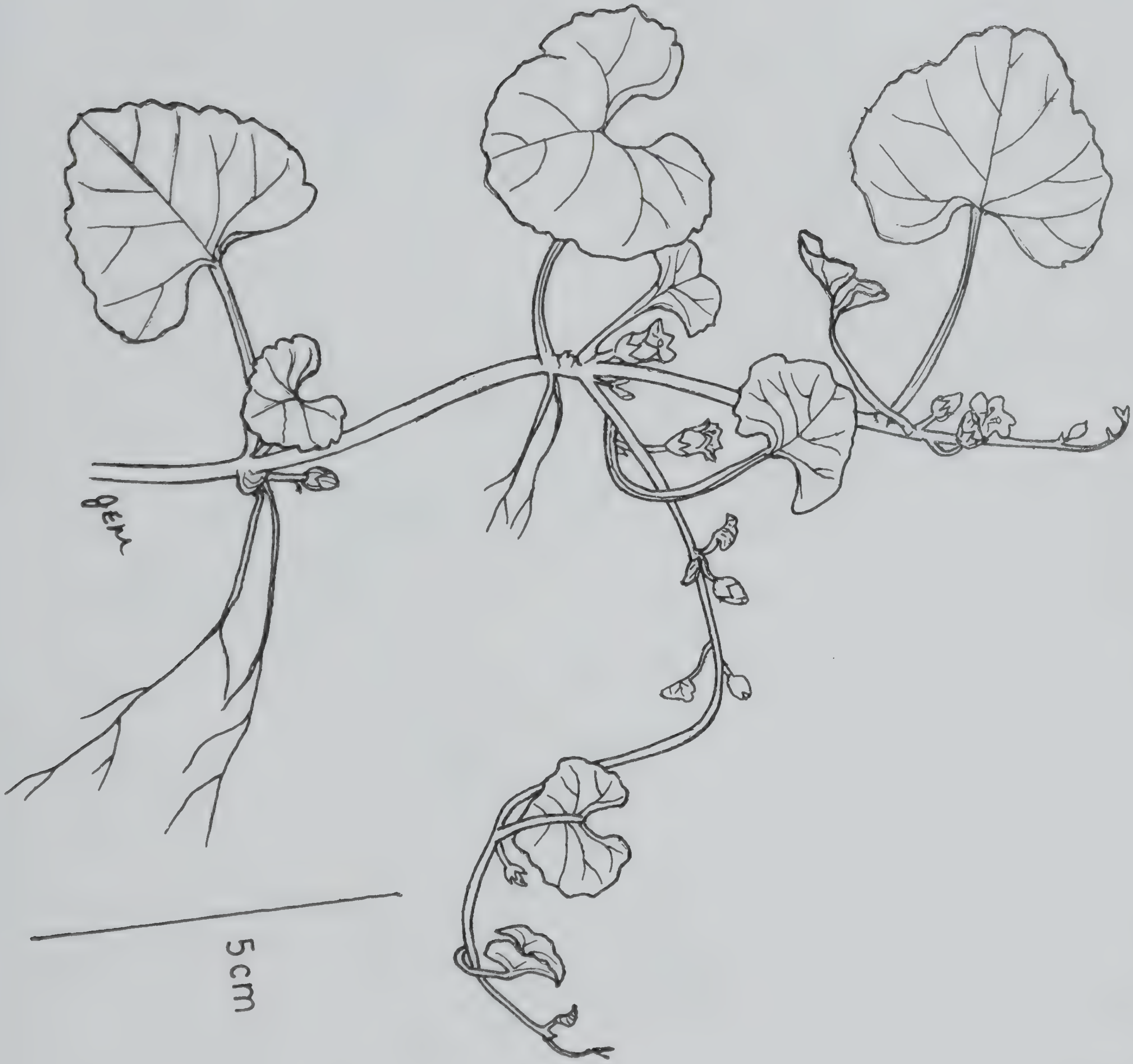
Ipomoea sindica Stapf

Characteristics : A twining annual herb with many slender, hairy stems. Leaves triangular-hastate, narrow at tip, hairy on surfaces. Flowers white, arranged in axillary, 1 to 3-flowered cymes. Fruit a globose, glabrous capsule with persistent calyx.

Habitat : Found climbing on herbs and small shrubs throughout the uplands.

Fl. & Fr. : September to November.

Reference : FUGP. 2:113; FD. 236; FID. 260



MERREMIA Dennst.

Merremia emarginata Hall. f.

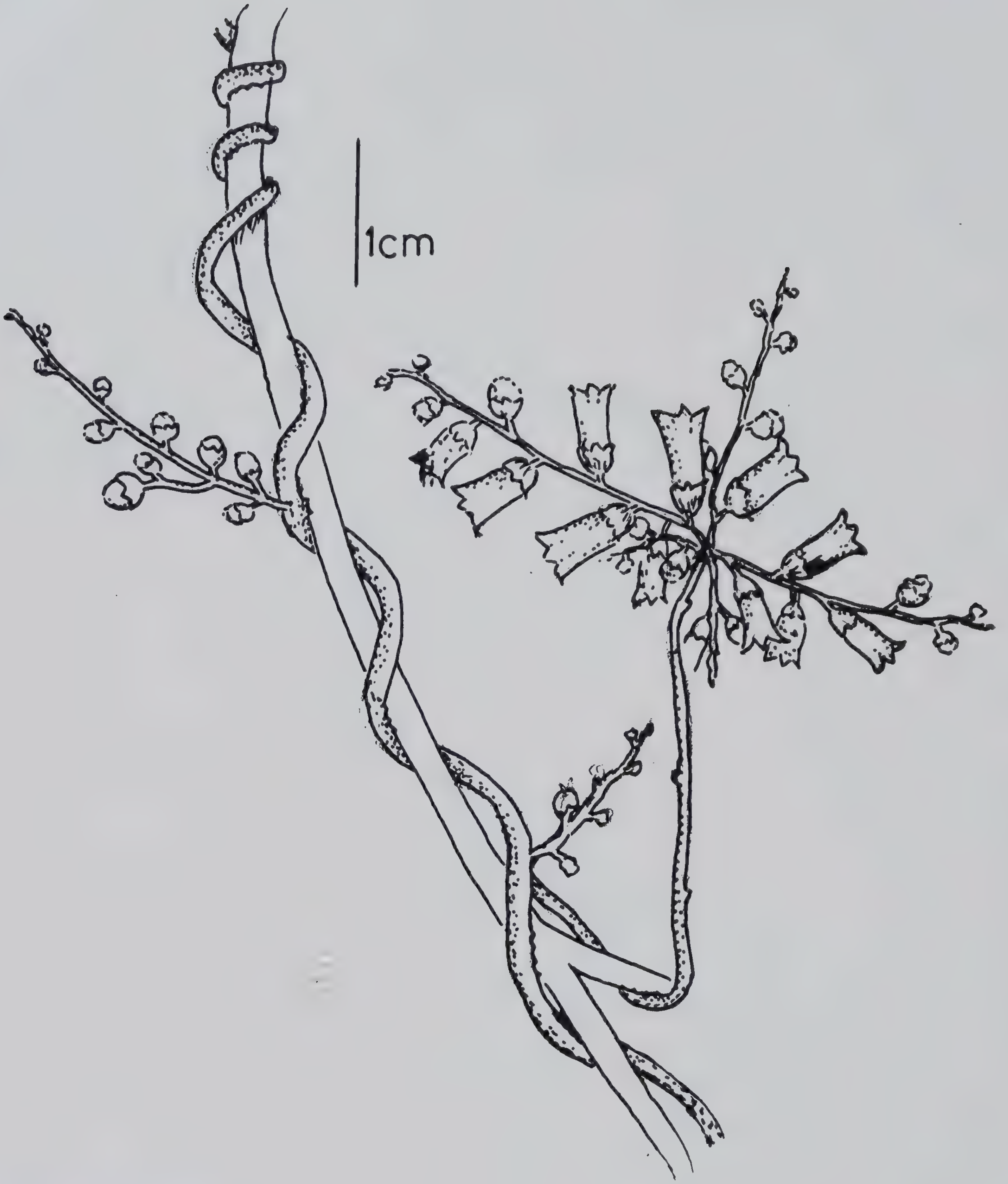
Synonyms : *M. gangetica* (L.) Cufodont.
Ipomoea reniformis Choisy

Characteristics : A branched, prostrate, creeping herb, rooting from the nodes. Leaves broad, kidney- shaped, glabrous; margin smoothly toothed. Flowers yellow, 1 to 3 arranged on a common, axillary peduncle. Fruit a 2-celled capsule, surrounded by an enlarged, persistent calyx.

Habitat : Found in wet shady areas near the dykes.

Fl. & Fr. : September to December.

Reference : FBI. 4:206; FUGP. 2:109; FNER. 273



49. CUSCUTACEAE

CUSCUTA L.

Cuscuta reflexa Roxb.

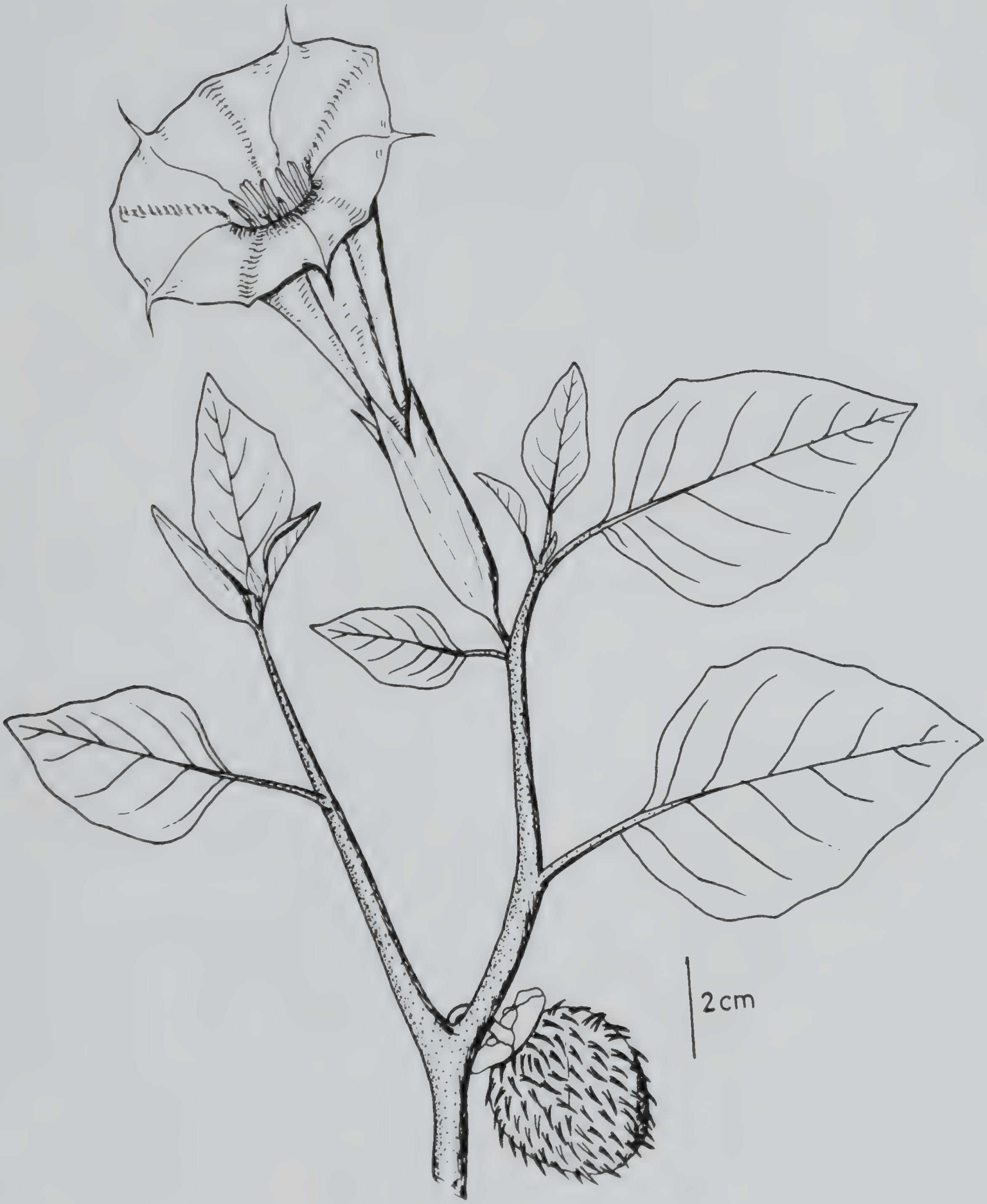
Local name : Amarbel

Characteristics : A branched, twining, leafless, parasitic plant with yellow, fleshy stems. Flowers whitish, in few-flowered racemes. Fruit a globose capsule.

Habitat : Common throughout the upland areas, forming yellow masses on trees and shrubs.

Fl. & Fr. : September to February.

Reference : FBI. 4:225; FUGP. 2:101; FD. 240; FID. 266; FNER. 260



50. SOLANACEAE

DATURA L.

Datura innoxia Mill.

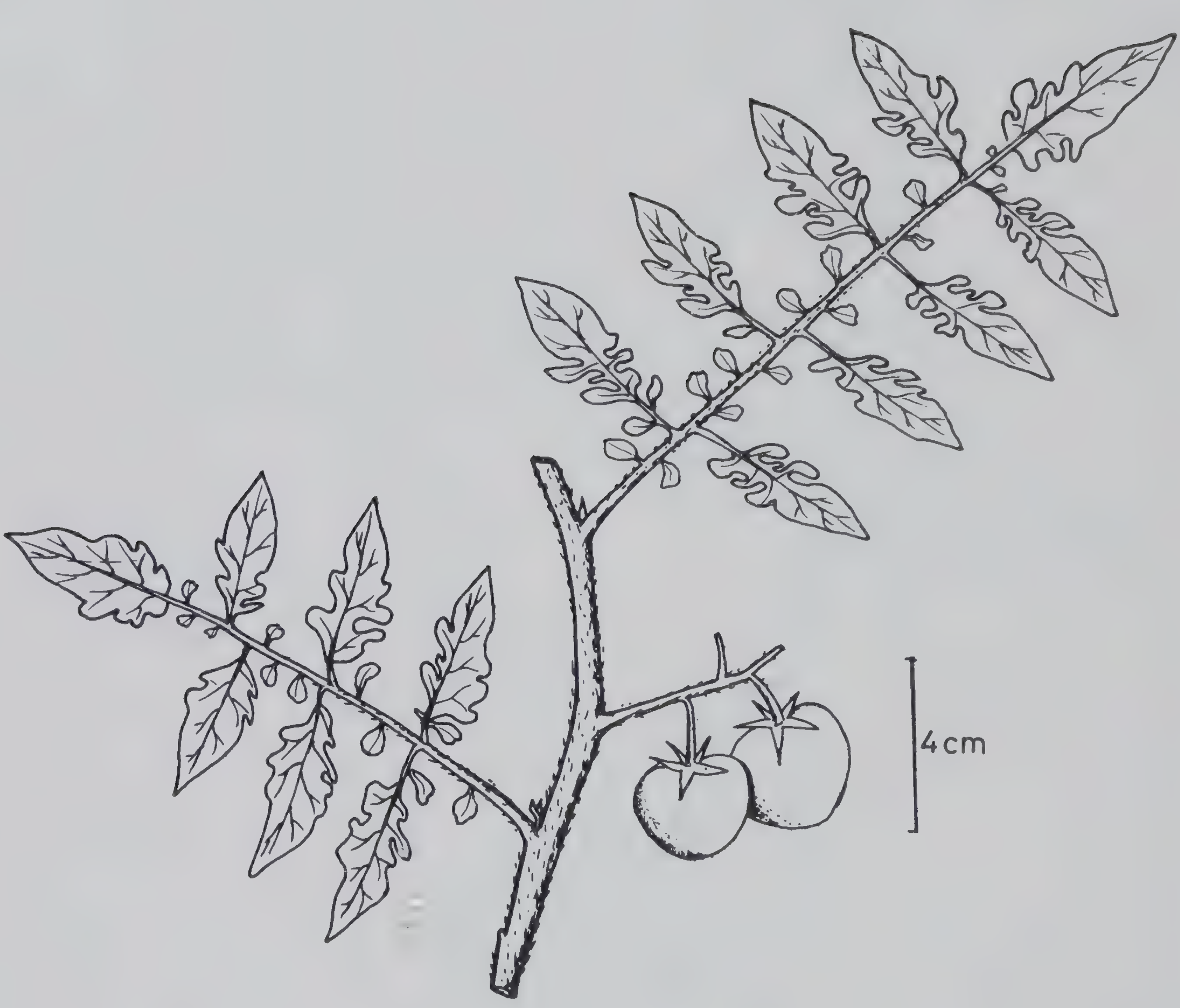
Local name : Dhatura

Characteristics : A stout, branched undershrub with densely glandular-hairy stem. Leaves broadly ovate, with unequal sides, minutely hairy on both surfaces. Flowers solitary, axillary; corolla white, funnel-shaped, 5-lobed. Fruit a globose capsule, clothed with spines. Seeds light brown.

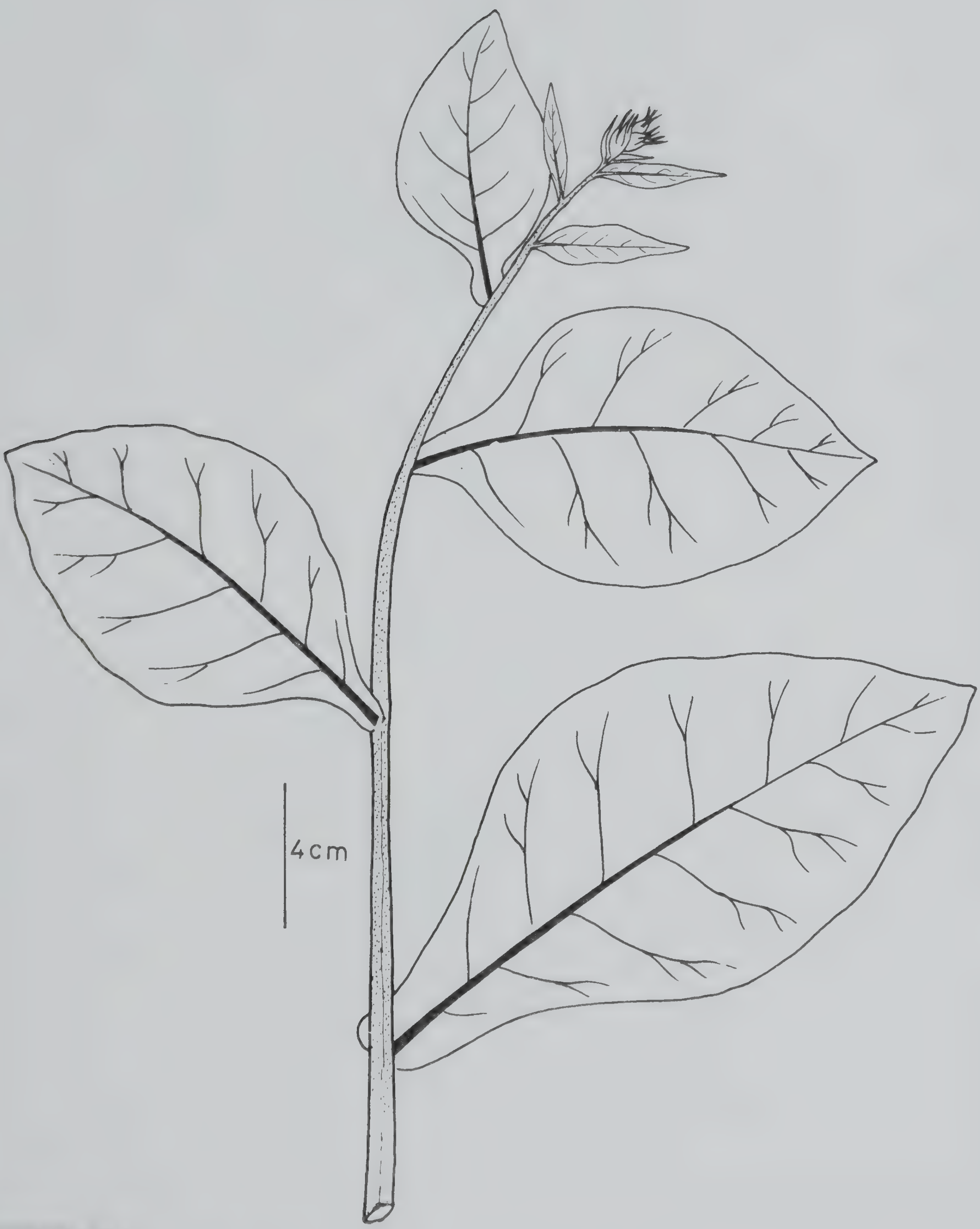
Habitat : Common along roadsides and open areas.

Fl. & Fr. : July to March.

Reference : FD. 243; FID. 268; FNER. 277



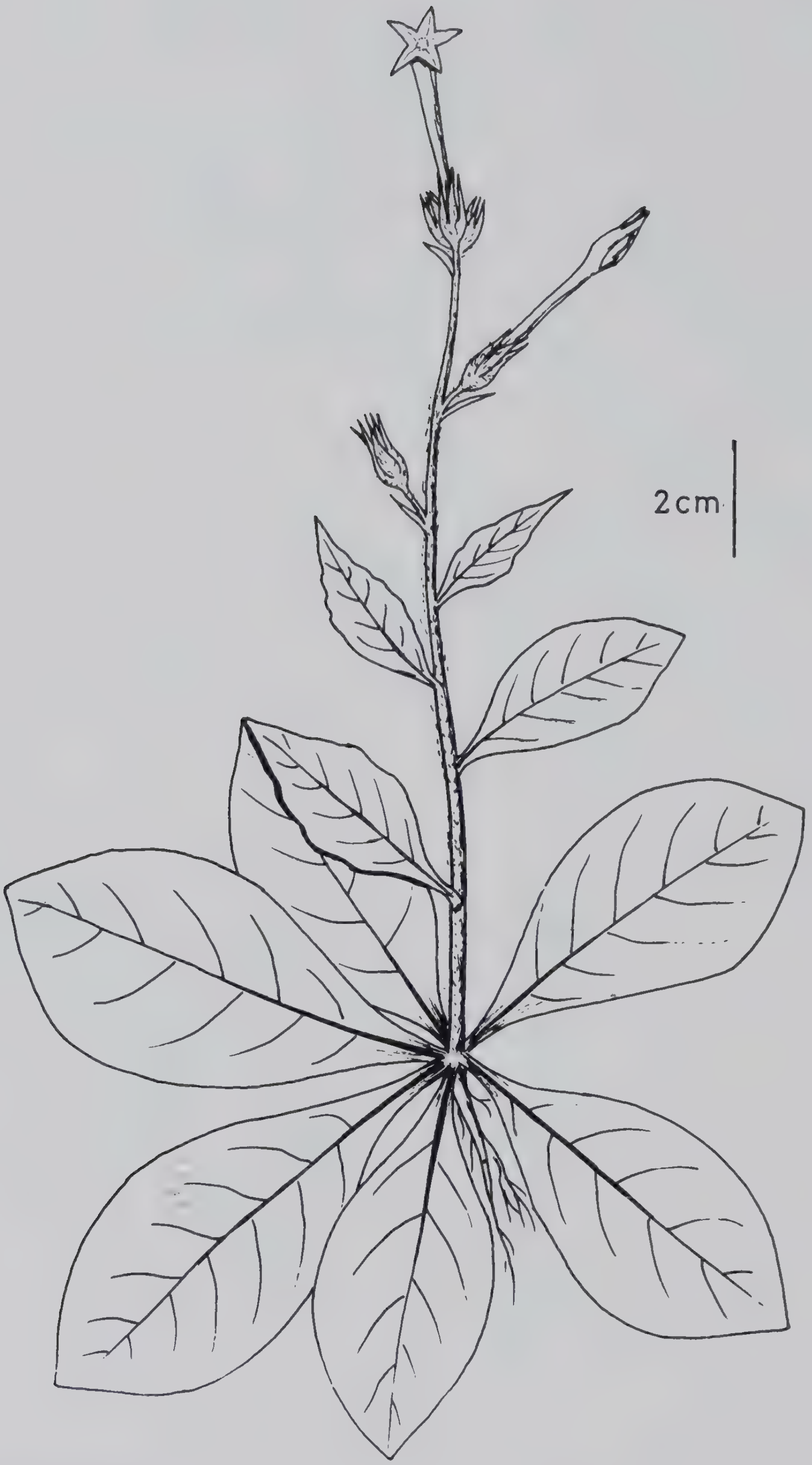
LYCOPERSICON Mill.
Lycopersicon esculentum Mill.
Local name : Tamatar
Characteristics : An erect or decumbent herb with glandular hairy stem. Leaves odd pinnate with small leaflets ovate-oblong, irregularly toothed. Flowers yellow, decurved, in clusters of 1 to 3. Fruit a pulpy berry with many seeds, red when ripe.
Habitat : Found near the dykes; may have been introduced from cultivation.
Fl. & Fr. : March to October.
Reference : FBI. 4:237; FUGP. 2:132; FD. 247; FID. 271



NICOTIANA L.

Nicotiana alata Link & Otto

Characteristics	:	A glandular pubescent herb. Basal leaves obovate to lanceolate; upper leaves smaller, subamplexicaul, often oblong and acuminate. Flowers glandular-pubescent, in terminal racemes; open in the evening and close next day, fragrant at night. Fruits oblong.
Habitat	:	Moist shady area; rare in the park.
Fl. & Fr.	:	Not seen.
Reference	:	BBO. 2:647



Nicotiana plumbaginifolia Viv.

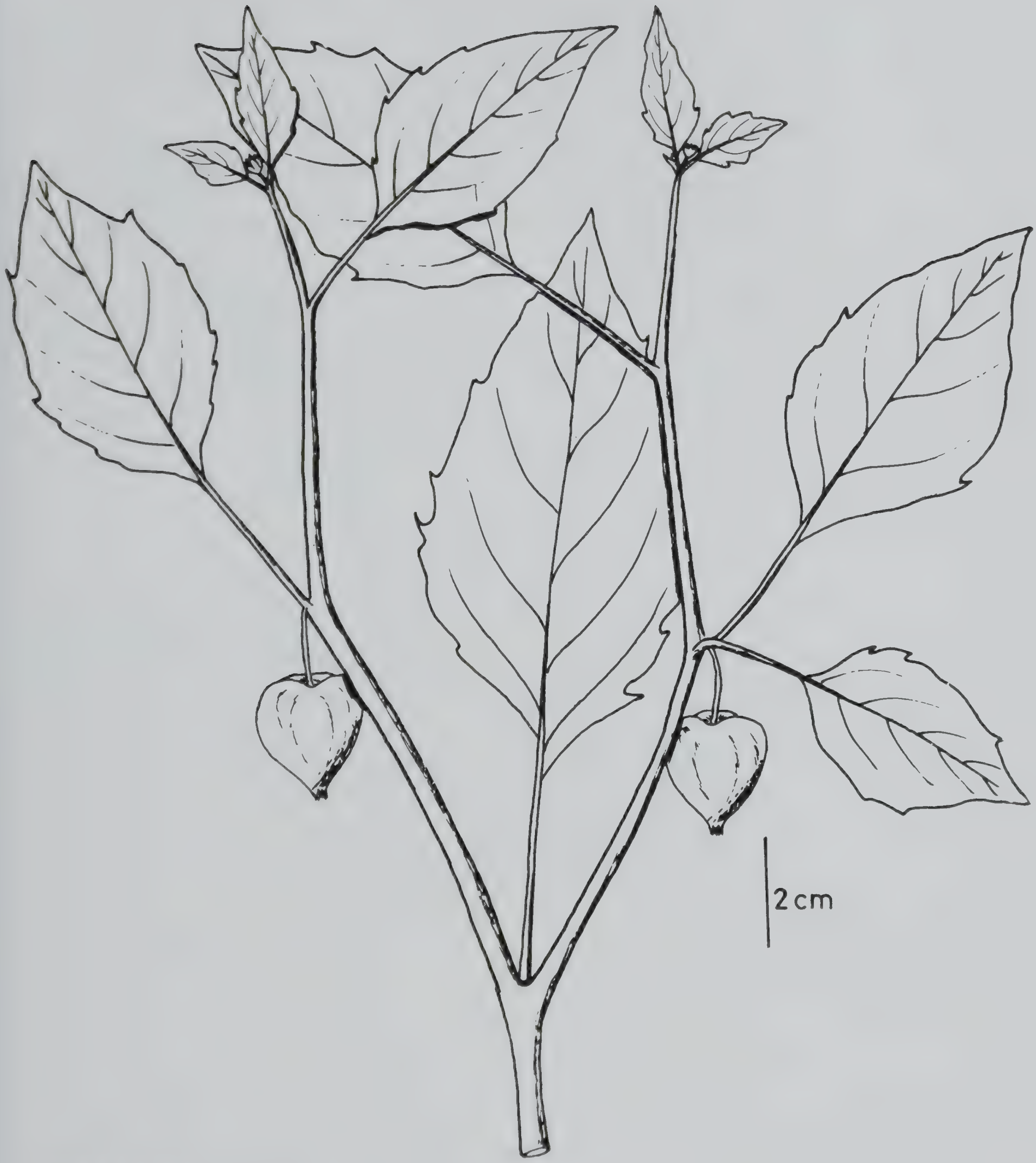
Local name : Jangli tamaku

Characteristics : An erect herb with glandular, hairy stem. Basal leaves much larger, forming a rosette; cauline leaves smaller, alternate. Flowers pinkish, in terminal racemes; corolla tube 3-4 cm long. Fruit an ovoid capsule, enclosed by persistent calyx. Seeds small, many, brown.

Habitat : Moist shady areas; common under shrubs and small trees throughout the uplands.

Fl. & Fr. : February to May.

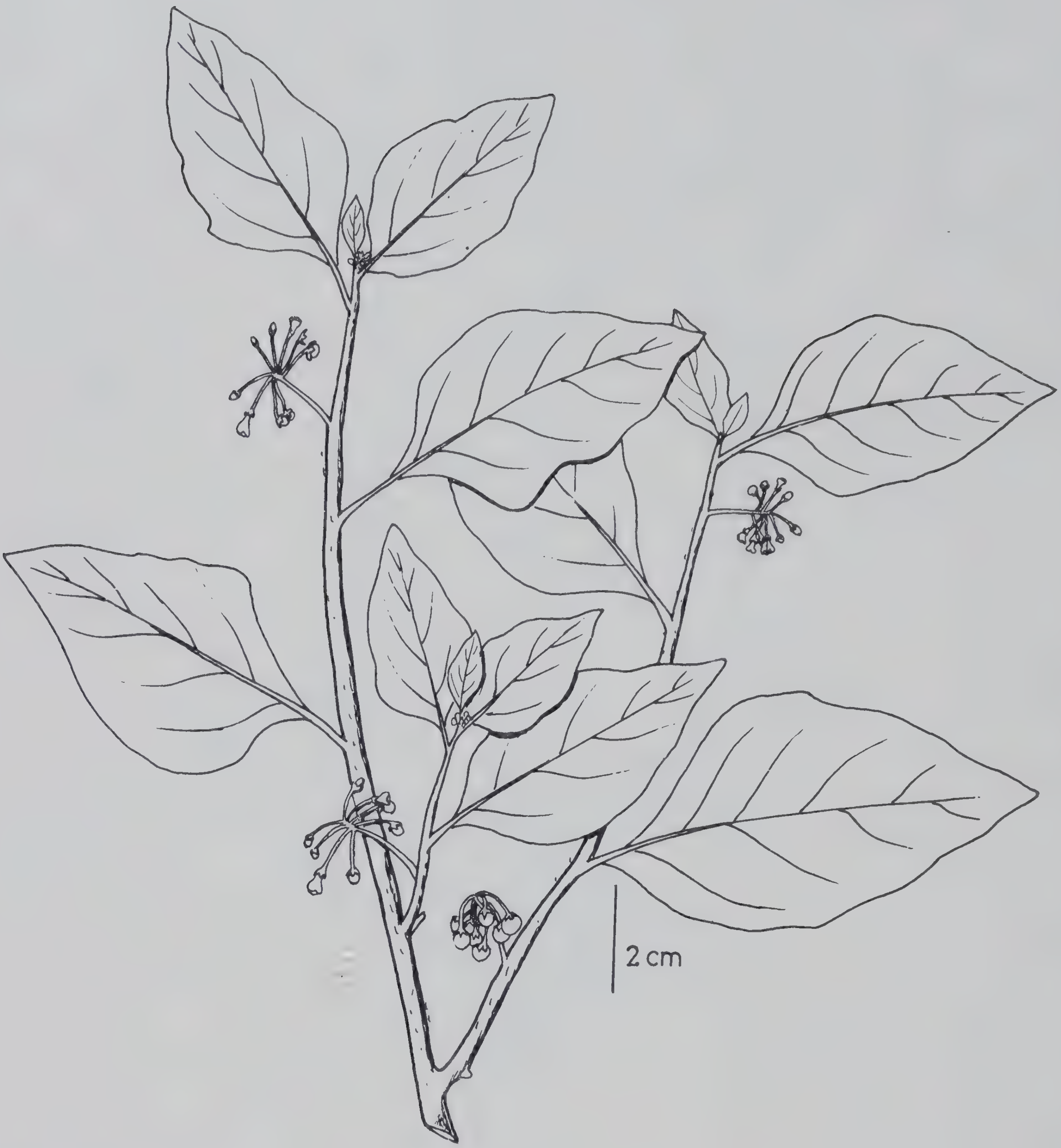
Reference : FBI. 4:246; FD. 242; FNER. 281



PHYSALIS L.

Physalis minima L.

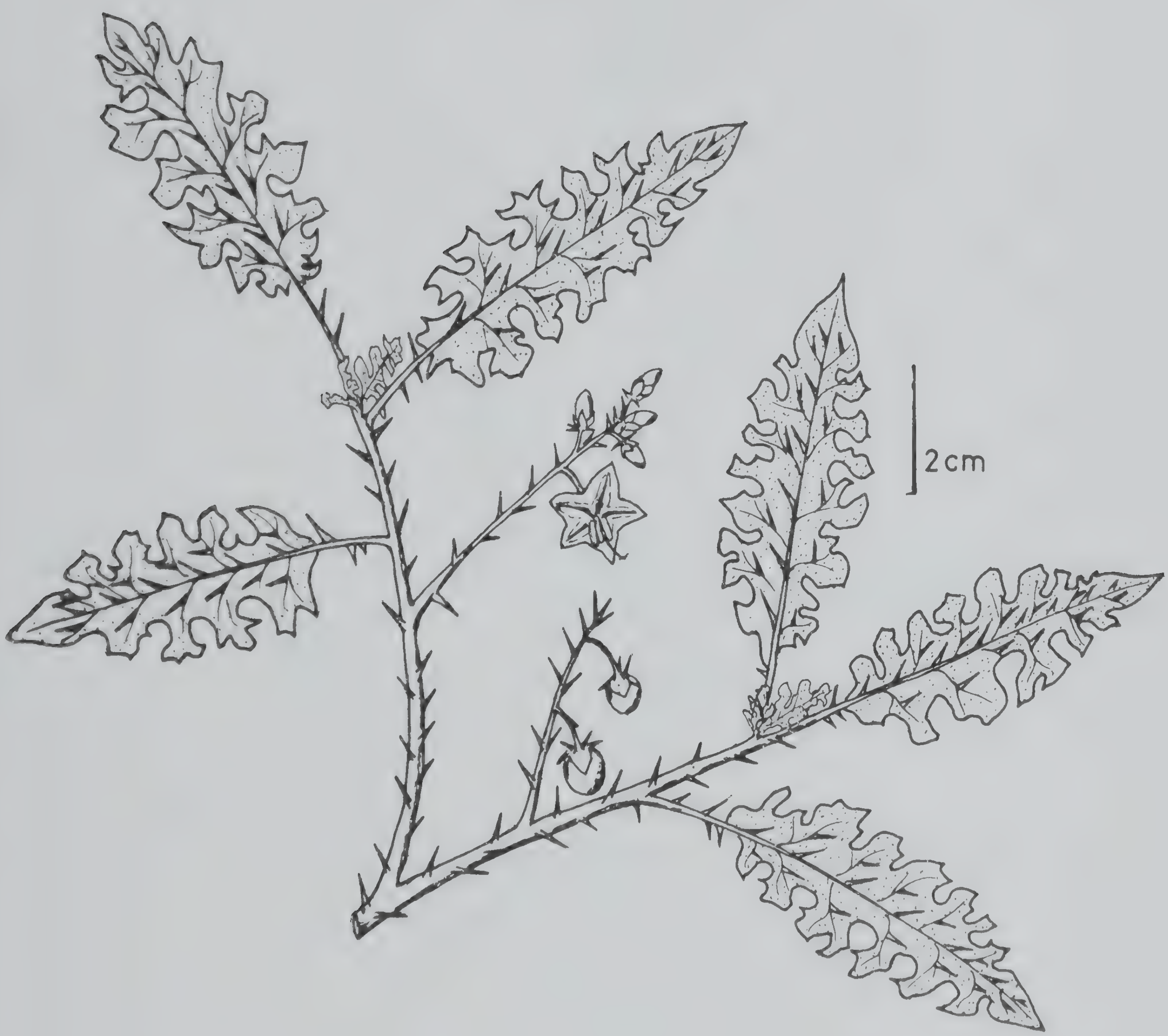
Local name	:	Chin mitti
Characteristics	:	An erect branched herb. Leaves ovate, entire or shallowly toothed. Flowers yellow, solitary, axillary. Fruit a globose berry, enclosed by enlarged balloon-like calyx, yellow when ripe.
Habitat	:	Common in moist shady area.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 4:238; FUGP. 2:127; FD. 241; FID. 271



SOLANUM L.

Solanum nigrum L.

Local name	:	Kali makoi, Chin mitti
Characteristics	:	An erect, branched herb with glabrous to sparsely hairy stem. Leaves ovate; margin entire, toothed or lobed. Flowers white, drooping, in several-flowered cymes. Fruit a globose berry, purplish-black or red when ripe.
Habitat	:	Moist, shady areas; common along roadside under shrubs and small trees.
Fl. & Fr.	:	July to March.
Reference	:	FBI. 4: 229; FUGP. 2:124; FD. 245; FID. 275



Solanum surattense Burm. f.

Synonym : *S. xanthocarpum* Schrad. & Wendl.

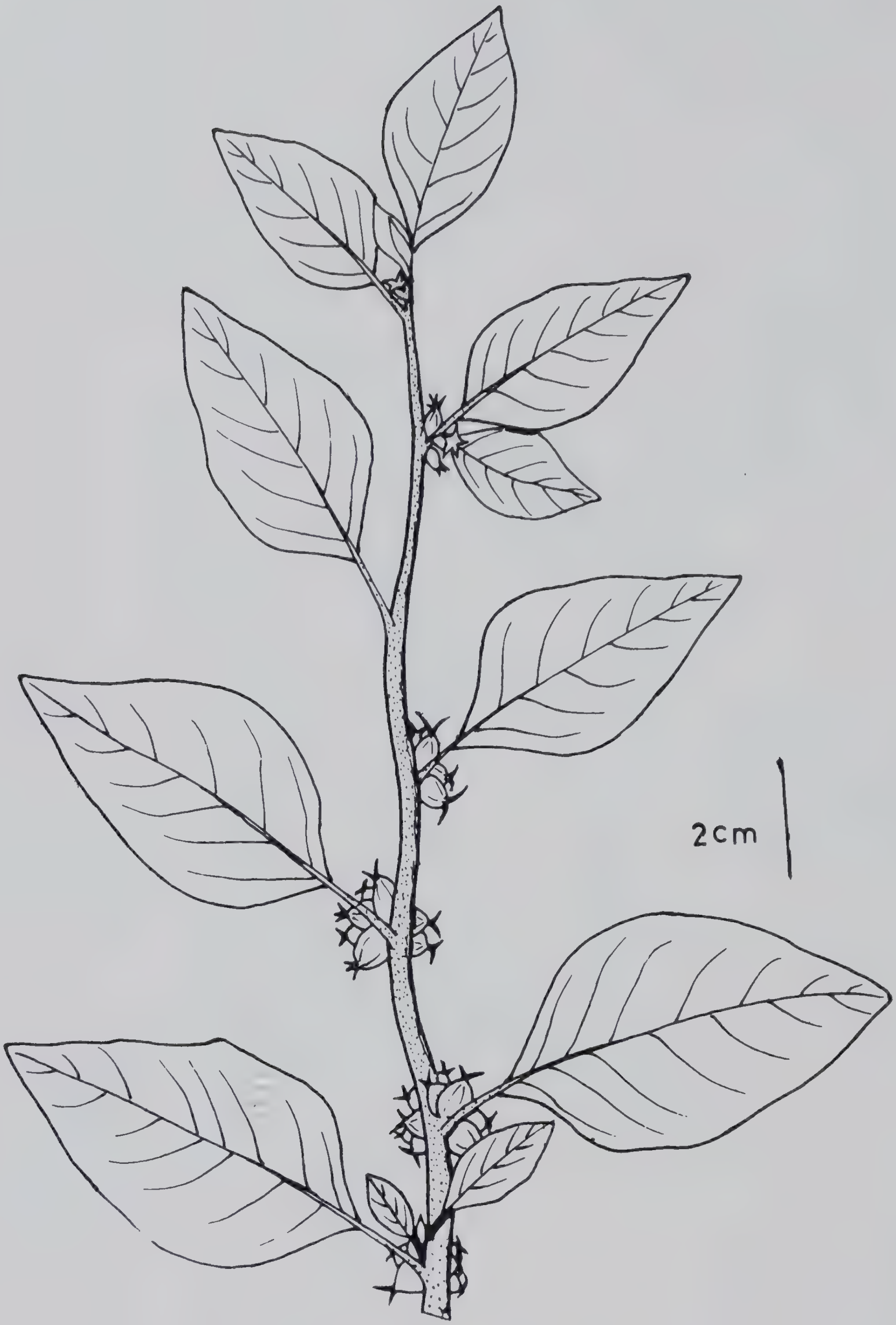
Local name : Phal Kateri

Characteristics : A prickly, prostrate, perennial undershrub. Stems with many yellow prickles. Leaves pinnately lobed or wavy on margin; midrib and veins with prickles. Flowers bluish- purple, in clusters of 1 to 5. Fruit a globose berry with persistent calyx, yellow when ripe.

Habitat : Dry sandy soil throughout the uplands; not common.

Fl. & Fr. : Throughout the year.

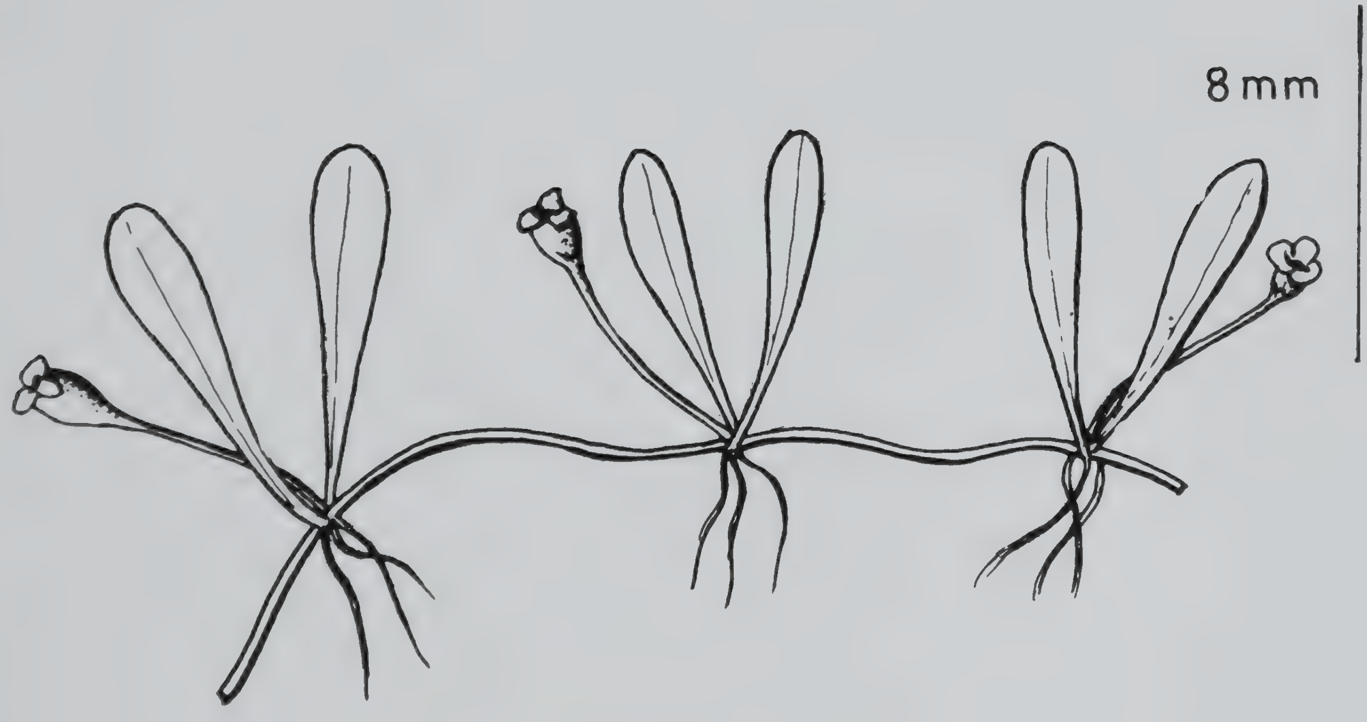
Reference : FBI. 4: 236; FUGP. 2:125; FD. 245; FID. 275; FNER. 284



WITHANIA Pauq.

Withania somnifera (L.) Dunal

Local name	:	Askand
Characteristics	:	An erect, branching, perennial herb with softly woolly stem. Leaves usually ovate, unequal at the base. Flowers greenish-yellow in umbel-like axillary clusters of 4 to 6. Fruit a globose berry, enclosed by inflated calyx, red when ripe.
Habitat	:	Open dry areas.
Fl. & Fr.	:	August to March.
Reference	:	FBI. 4: 239; FUGP. 2:128; FD. 241; FID. 277; FNER. 285



51. SCROPHULARIACEAE

GLOSSOSTIGMA Wt. & Arn.

Glossostigma diandrum (L.) Kuntze

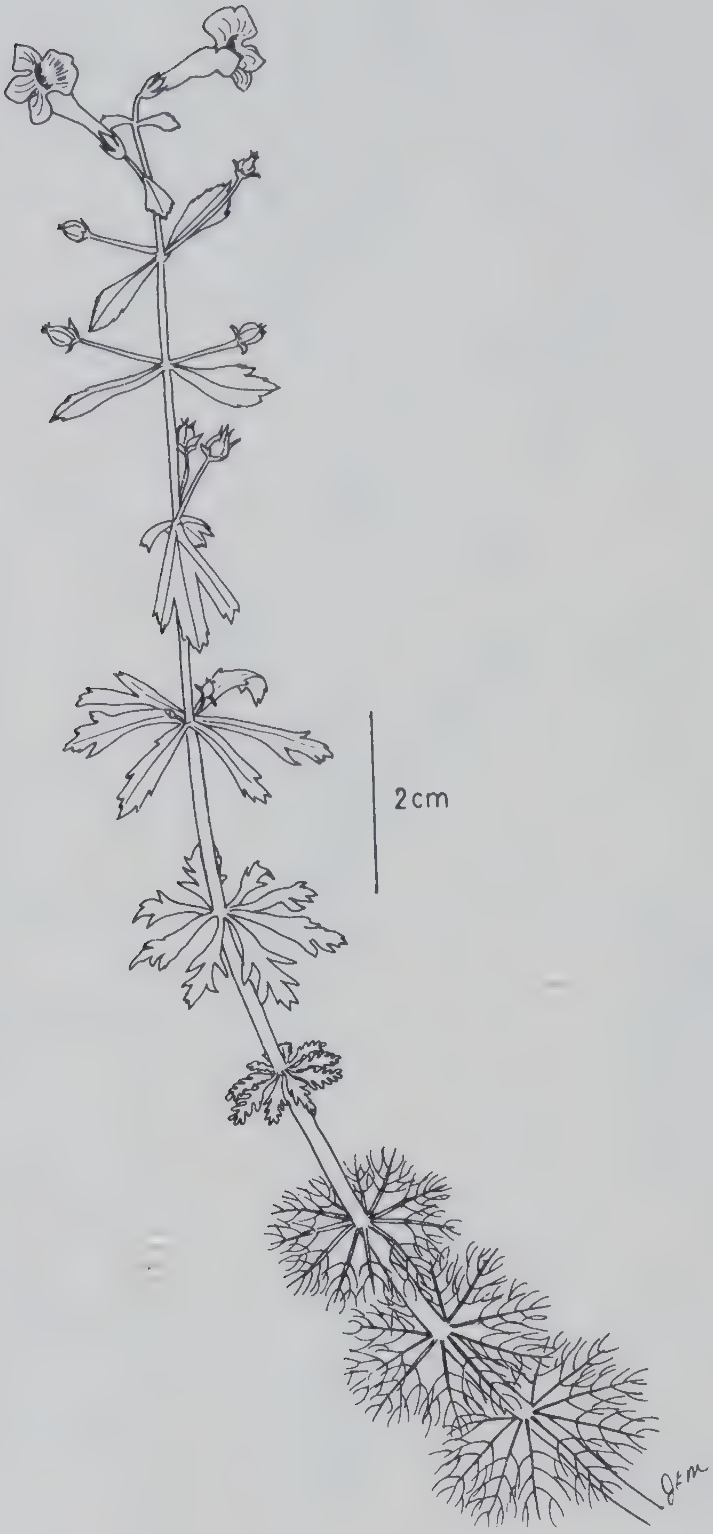
Synonym : *G. spathulatum* (Hook. ex Wt.) Arn. ex Benth.

Characteristics : A minute, creeping plant, rooting from the nodes. Leaves opposite, spathulate, less than 1 cm long. Flowers whitish blue, solitary in leaf axils; calyx 3-lobed; corolla contained by calyx. Fruit a subglobose capsule, 2.5 mm across, enclosed by calyx. Seeds minute, numerous.

Habitat : Mudflats of monsoonal pools.

Fl. & Fr. : September to February.

Reference : FBI. 4:288; FUGP. 2:152; FD. 254; FID. 281



LIMNOPHILA R. Br.

Limnophila indica (L.) Druce

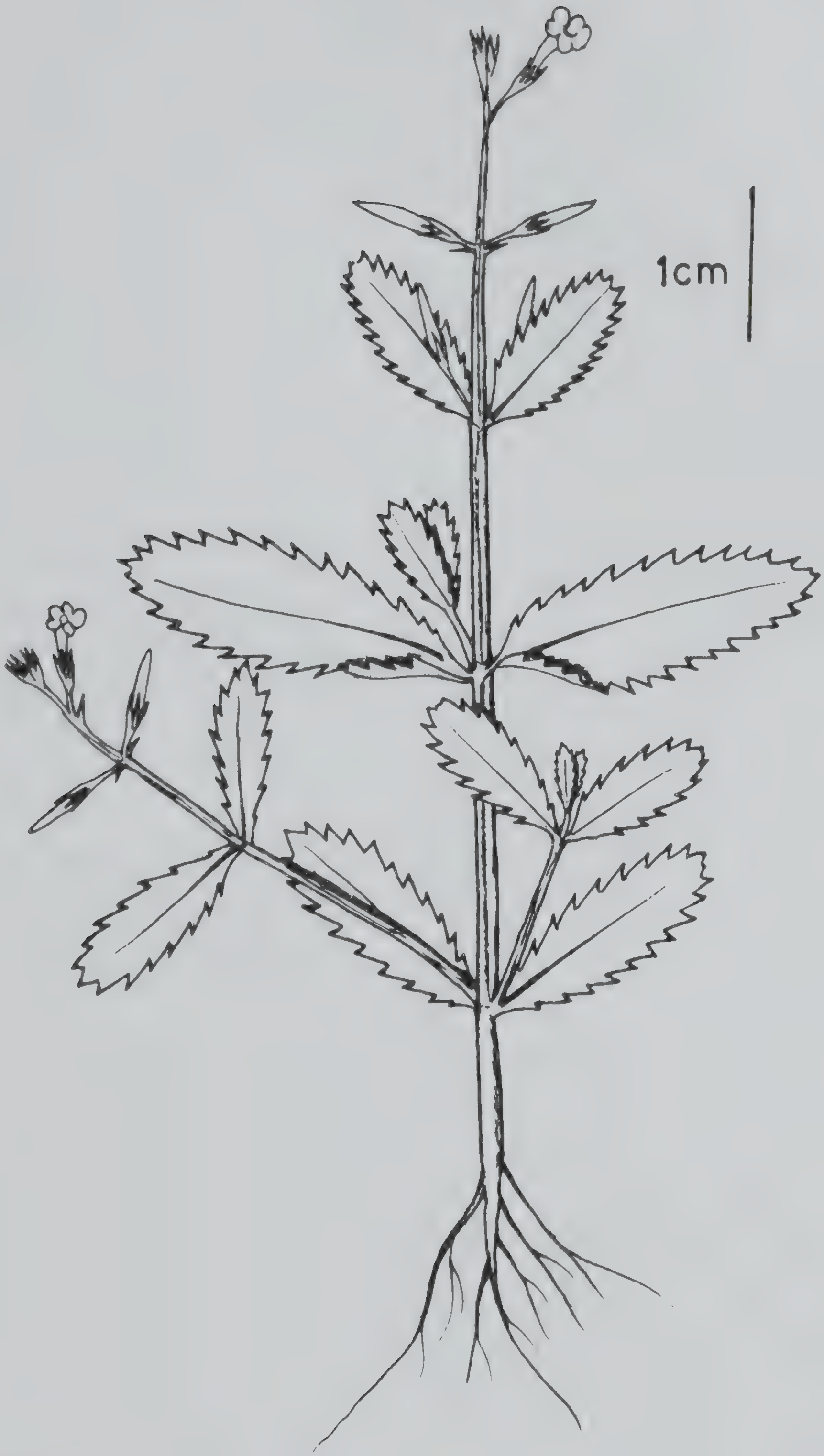
Synonym : *L. gratioloide*s R. Br.

Characteristics : An aquatic herb rooting and branching from the base. Submerged leaves highly dissected, arranged in whorls; emergent leaves trifid, toothed or entire, arranged oppositely. Flowers white to purple, solitary in leaf axils. Fruit an ovoid-ellipsoid capsule with many small, black seeds.

Habitat : Mudflats, monsoonal pools and margins of aquatic area.

Fl. & Fr. : August to February.

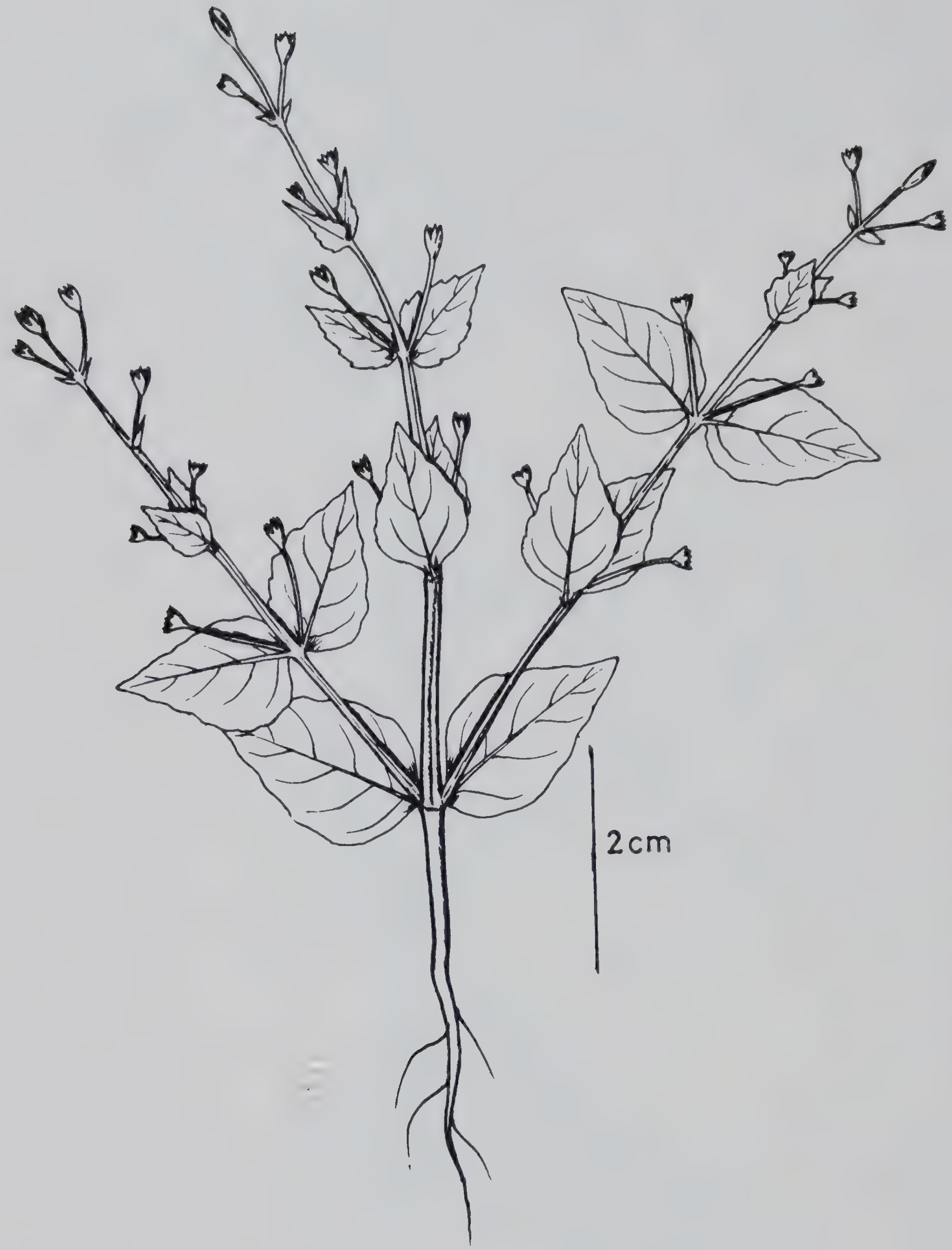
Reference : FBI. 4: 271; FUGP. 2:146; FHD. 520; FBR. 168



LINDERNIA All.

Lindernia ciliata (Colsm.) Penn.

Synonym	:	*Bonnaya brachiata* Link & Otto
Characteristics	:	An erect or decumbent herb with 4-angled stem. Leaves sessile, opposite, lanceolate-oblong or obovate, obtuse at tip, densely toothed at margin with bristle-tipped teeth. Flowers white or pinkish, arranged in terminal racemes. Fruit a linear, cylindric capsule with many small seeds.
Habitat	:	Moist open areas and drying monsoonal pools.
Fl. & Fr.	:	September to February.
Reference	:	FBI. 4:284; FUGP. 2:151; FD. 253; FNER. 292



Lindernia crustacea (L.) F. Muell.

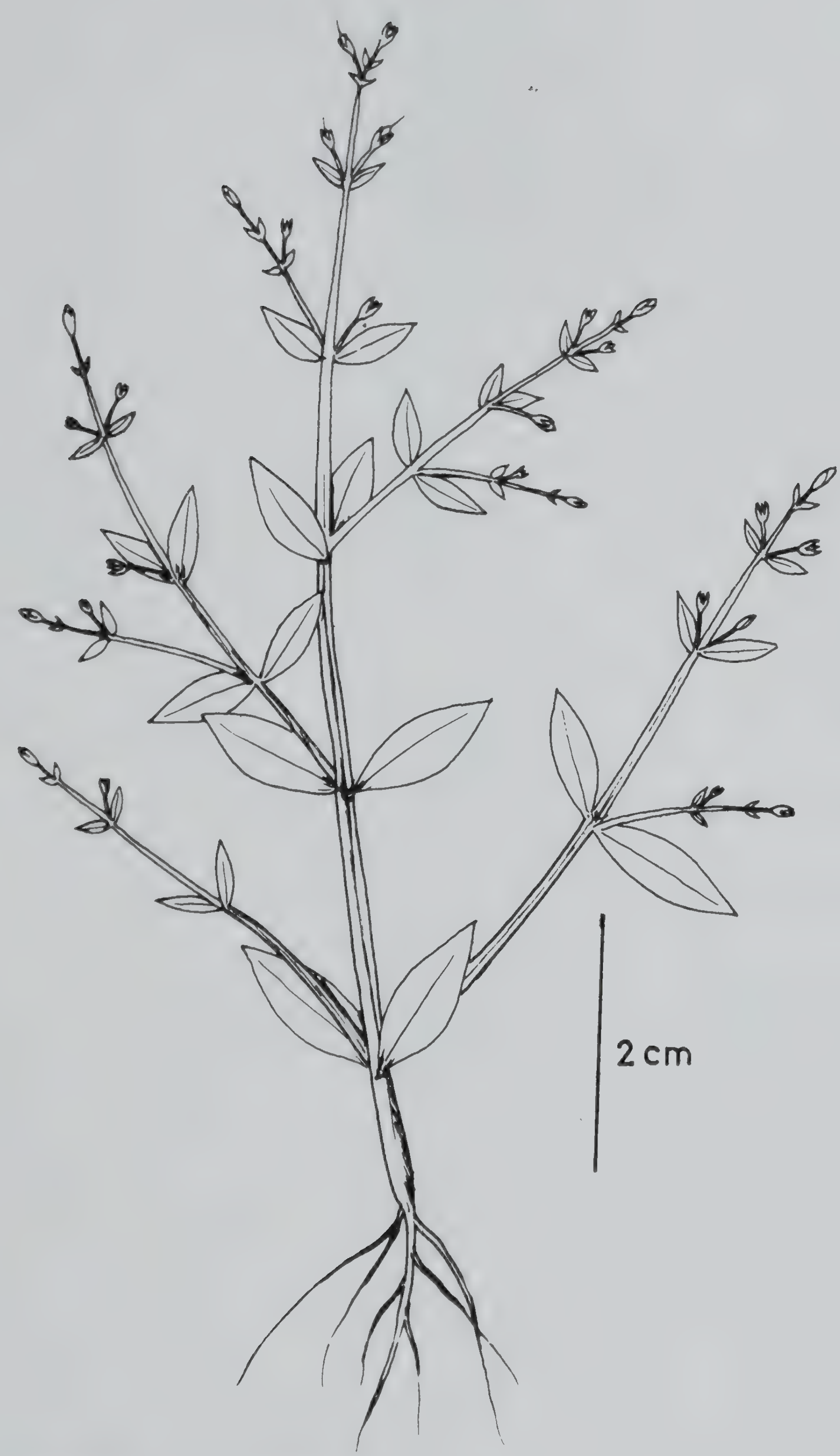
Synonym : *Vandellia crustacea* Benth.

Characteristics : A small glabrous herb, branching from the base. Leaves opposite, short petioled, ovate, sub-cordate or rounded at base, sub-obtuse or acute at apex; margin shallowly toothed or entire. Flowers purplish with whitish lobes, solitary or several together in leaf axils. Fruit an ellipsoid-oblong capsule, apiculate with persistent style base; more or less equal in length to the calyx.

Habitat : Moist soil throughout the uplands.

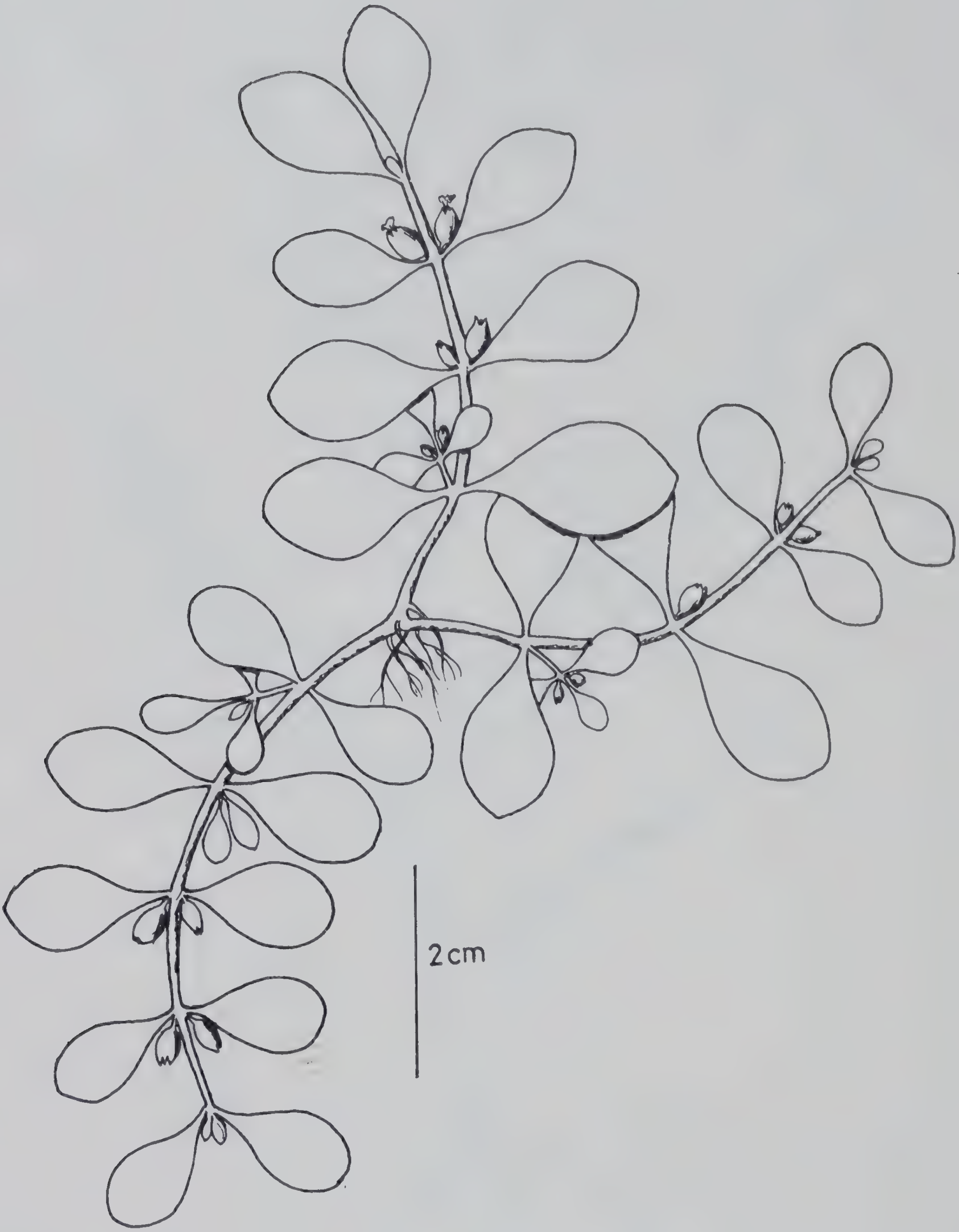
Fl. & Fr. : August to February.

Reference : FBI. 4:279; FUGP. 2:149; FD. 252; FNER. 294



Lindernia parviflora (Roxb.) Haines

Synonym	:	*Illysanthes parviflora* (Roxb.) Benth.
Characteristics	:	An erect or decumbent herb, rooting at lower nodes. Leaves sessile, opposite, ovate-lanceolate, rounded at base, sub-acute at apex; margin entire. Flowers white, solitary in leaf axils. Fruit an ellipsoid capsule, apiculate with persistent style base, with numerous small seeds.
Habitat	:	Moist open areas and drying monsoonal pools.
Fl. & Fr.	:	September to March.
Reference	:	FUGP. 2:151; HFD. 356; FD. 253



PEPLIDIUM Del.

Peplidium maritimum (L. f.) Asch.

Synonym	:	*P. humifusum* Del.
Characteristics	:	An aquatic or terrestrial herb. Stem when terrestrial, creeping, rooting at nodes; when aquatic, branching near water surface. Radical leaves rosulate, spathulate; cauline leaves opposite, obovate. Flowers 1 to 3 in leaf axils; calyx 5-ribbed, 5-lobed; corolla tube included in the calyx. Fruit an ovoid or globose capsule with many small seeds.
Habitat	:	Mudflats of monsoonal pools or aquatic up to a water depth of 60 cm.
Fl. & Fr.	:	August to February.
Reference	:	FBI. 4:287; FID. 284; FBR. 169; FTD. 139

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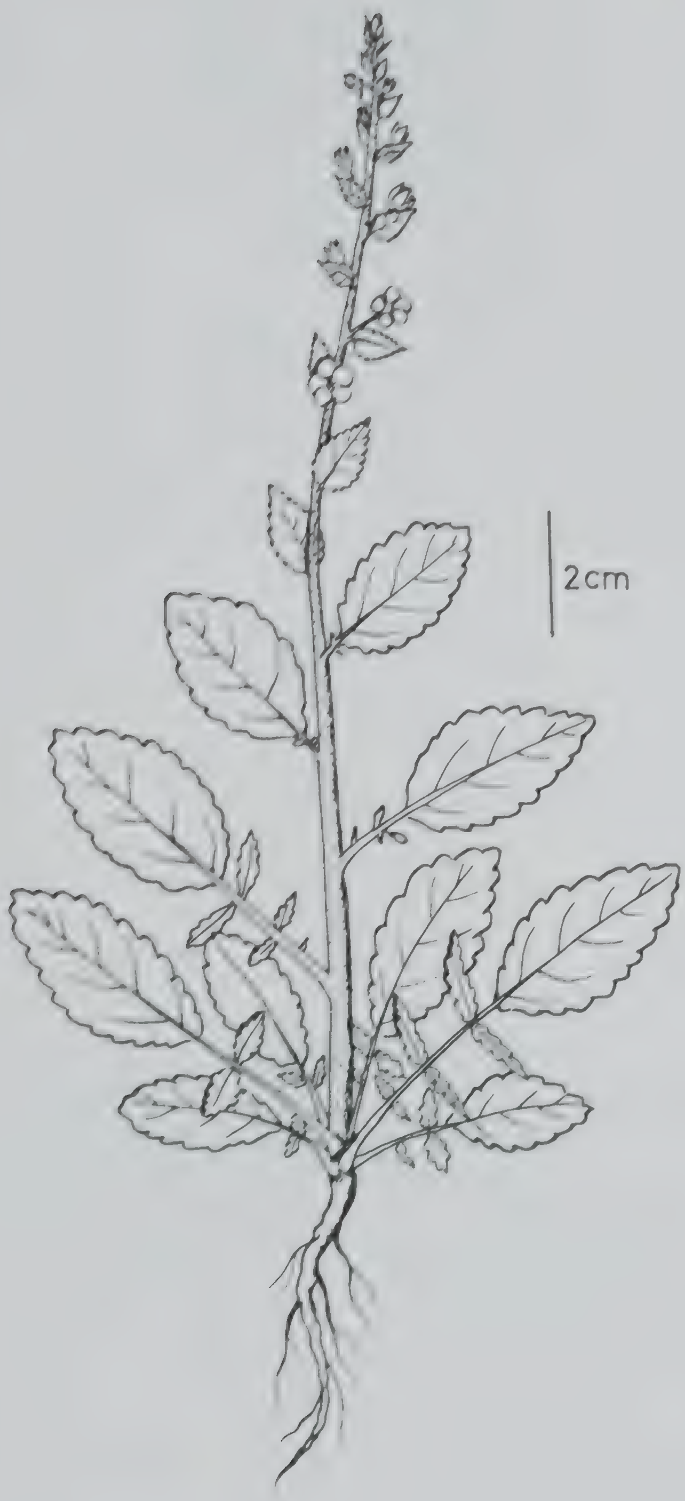


VERBASCUM L.

Verbascum chinense (L.) Santapau

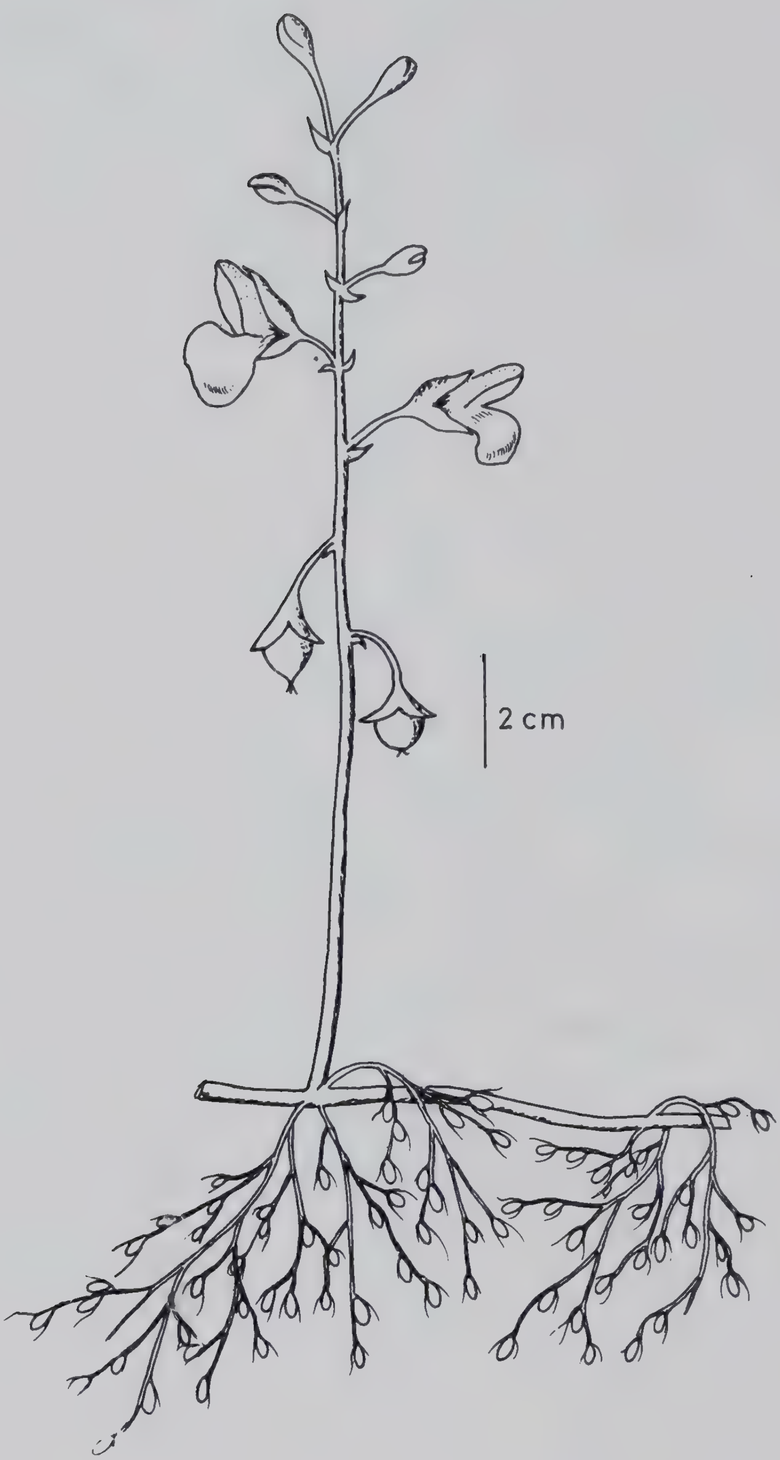
Synonym : *Celosia coromandeliana* Vahl

Characteristics : An erect glandular-hairy herb. Basal leaves oblong-obovate, lyrate-pinnatifid, long petiolate, arranged in a rosette; cauline leaves ovate-obtuse, crenate-dentate, becoming smaller into floral bracts towards the apex. Flowers yellow, in terminal racemes; sepals free; corolla 5-lobed. Fruit a globose capsule with many black warty seeds.

Habitat : Frequently seen in late winter along the dykes.

Fl. & Fr. : December to April.

Reference : FBI. 4:251; FD. 249; FID. 288; FNER. 300



52. LENTIBULARIACEAE

UTRICULARIA L.

Utricularia aurea Lour.

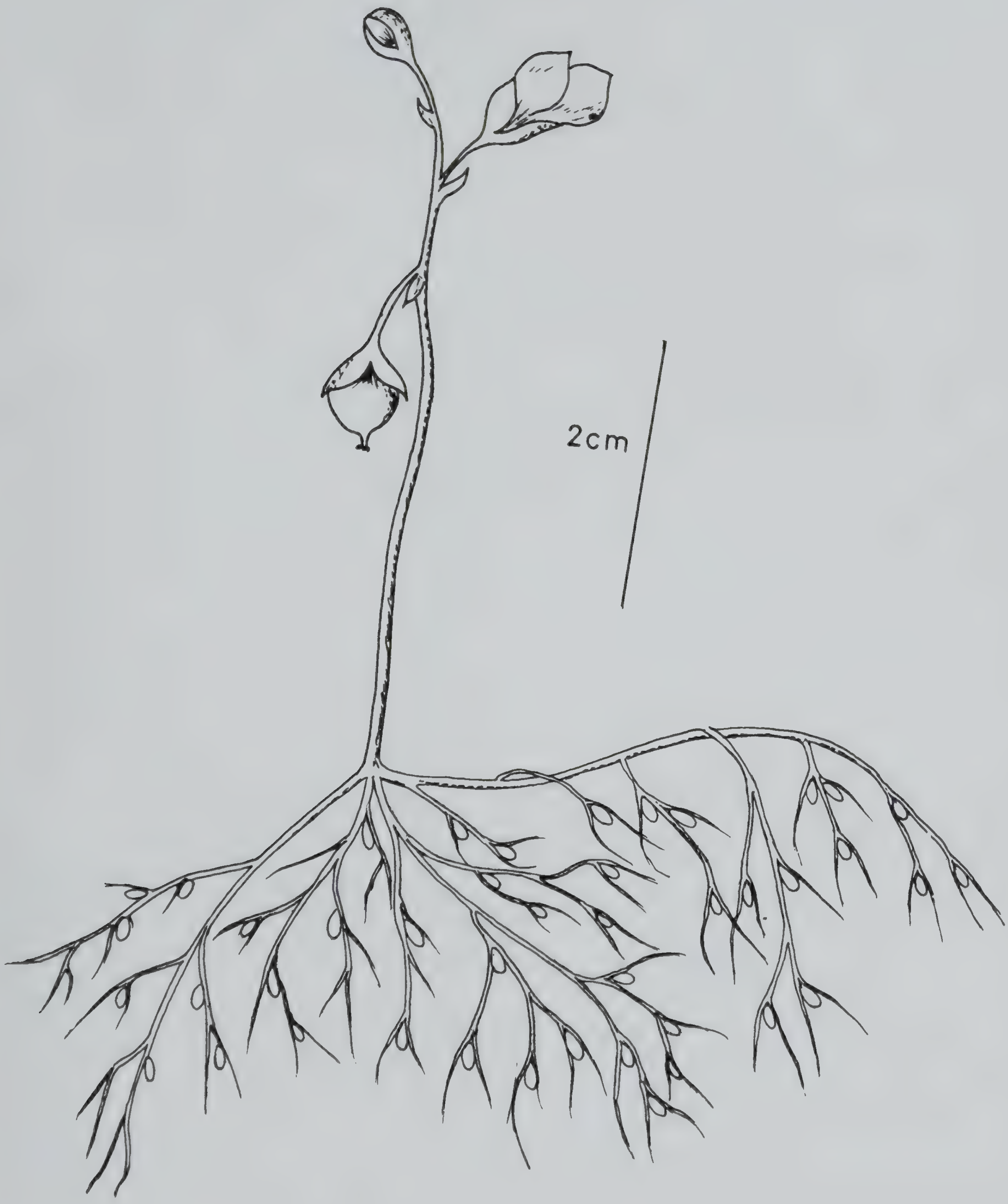
Synonym : *U. flexuosa* Vahl

Characteristics : A freely submerged aquatic herb. Leaves arranged in whorls, highly dissected into filiform segments; each segment with a bladder at the base. Flowers yellow, on erect aerial raceme; corolla with a spur. Fruit a subglobose capsule. Seeds without wings.

Habitat : Open aquatic areas.

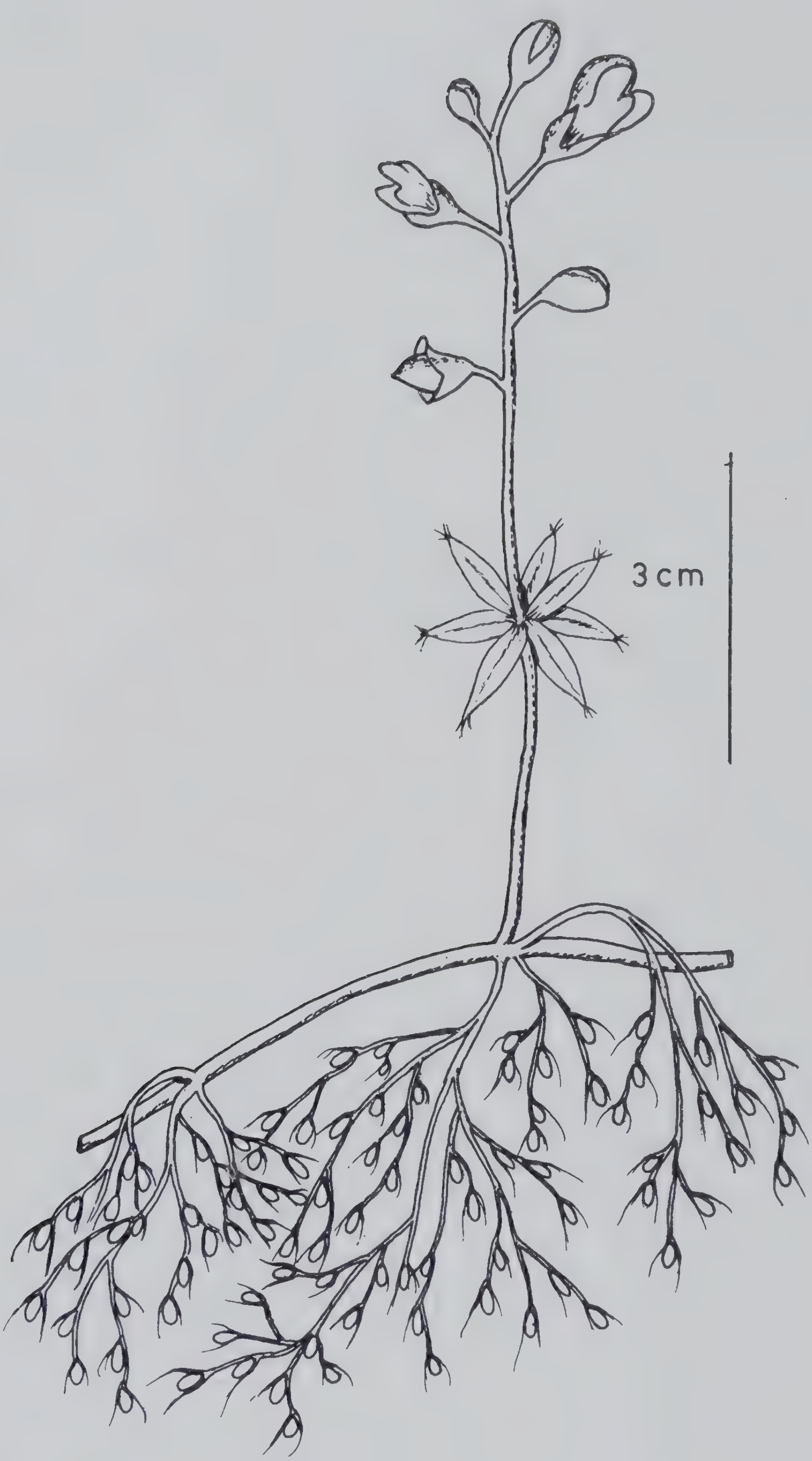
Fl. & Fr. : February to March and September to December.

Reference : FBI. 4:329; FUGP. 2:166; FD. 256; FNER. 306

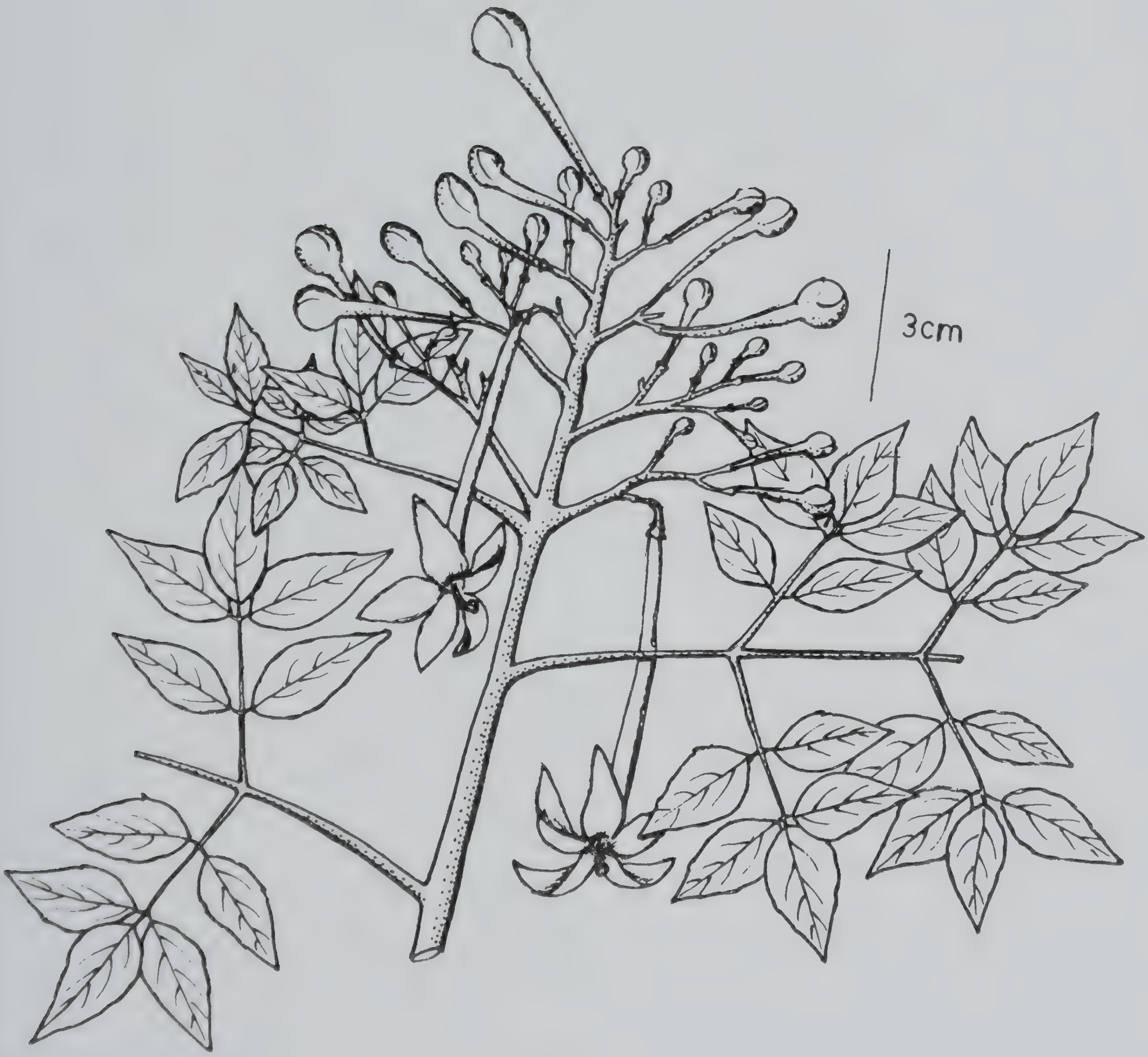


Utricularia exoleta R. Br.

Characteristics	:	A freely submerged aquatic herb. Leaves dissected into filiform segments; segments with bladders at the base. Flowers yellow, 1 to 3 on a slender aerial peduncle; corolla with a spur. Fruit a globose capsule with winged seeds.
Habitat	:	Commonly found in association with aquatic grass, *Paspalum distichum*.
Fl. & Fr.	:	November to April.
Reference	:	FBI. 4:329; FHD. 564; FBR. 172

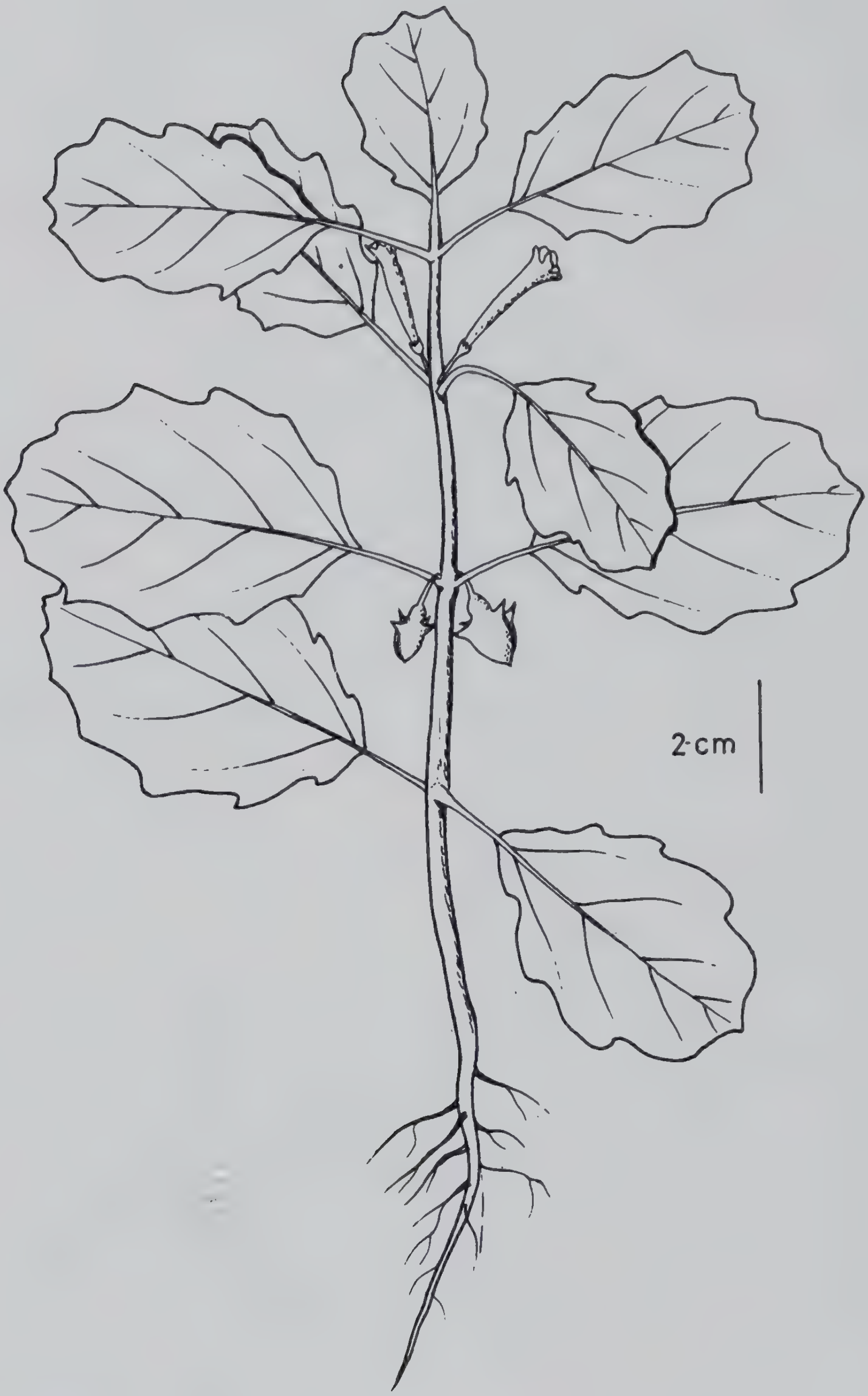


Utricularia stellaris L. f.
Synonym : *U. inflexa* Forsk. var. *stellaris* (L. f.) P. Taylor
Characteristics : A freely submerged aquatic herb. Leaves in whorls, highly dissected into filiform segments; segments with bladders at base. Flowers yellow, 5 to 7 arranged on an aerial stalk; peduncle with a whorl of floats above the middle. Fruit a globose capsule with many small seeds.
Habitat : Open water area and small ditches.
Fl. & Fr. : September to October.
Reference : FBI. 4:328; FUGP. 2:165; FD. 255; FHD. 565



53. BIGNONIACEAE

MILLINGTONIA L. f.
Millingtonia hortensis L. f.
Local name : Neem-chameli
Characteristics : A large tree with corky, greyish-black bark. Leaves pinnately compound; leaflets wavy at margin. Flowers white, fragrant, arranged in terminal panicles; corolla tubular.
Habitat : Along roadsides near Keoladeo Temple and Chital Van.
Fl. & Fr. : October to November.
Reference : FD. 259

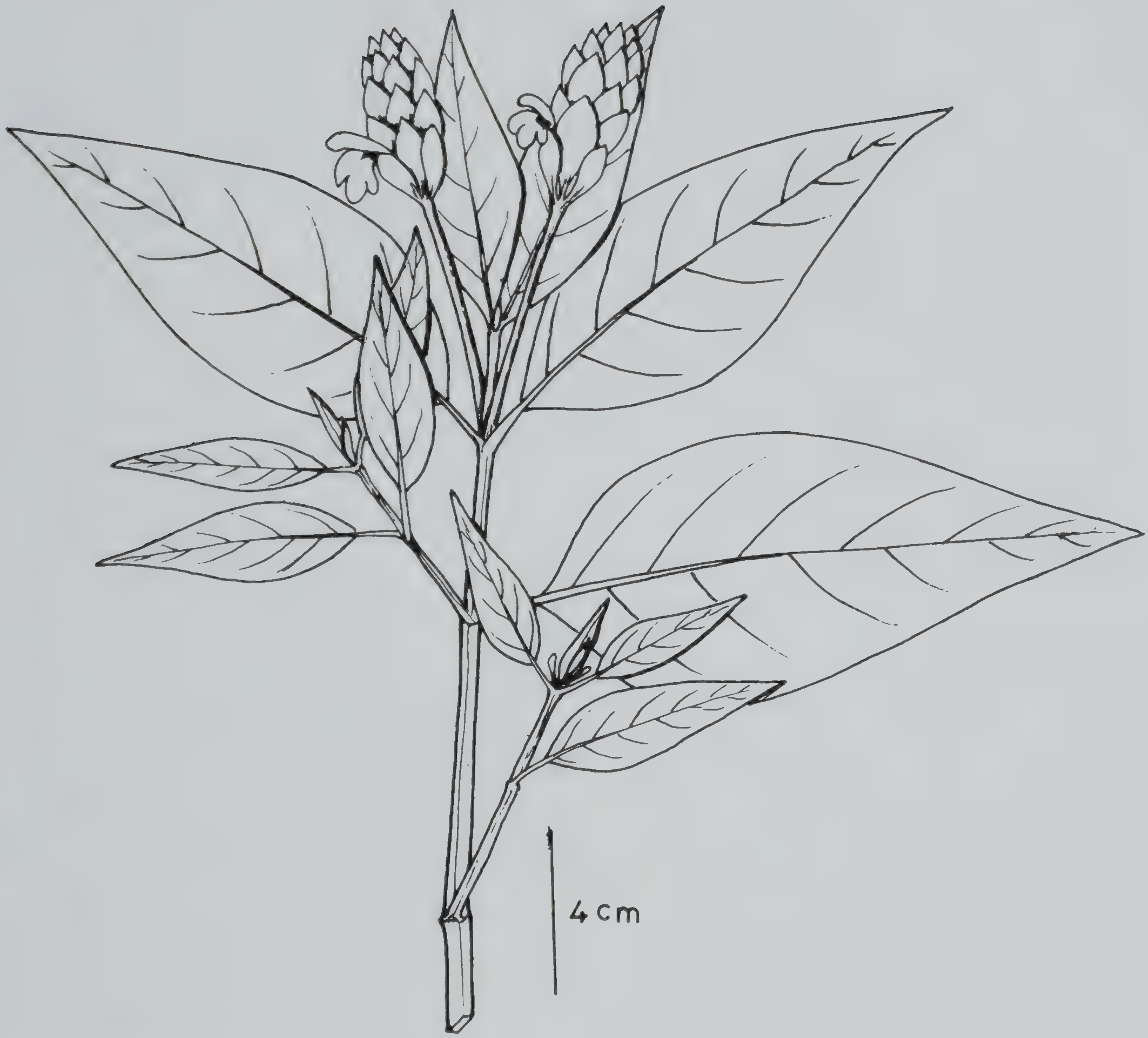


54. PEDALIACEAE

PEDALIUM L.

Pedalium murex L.

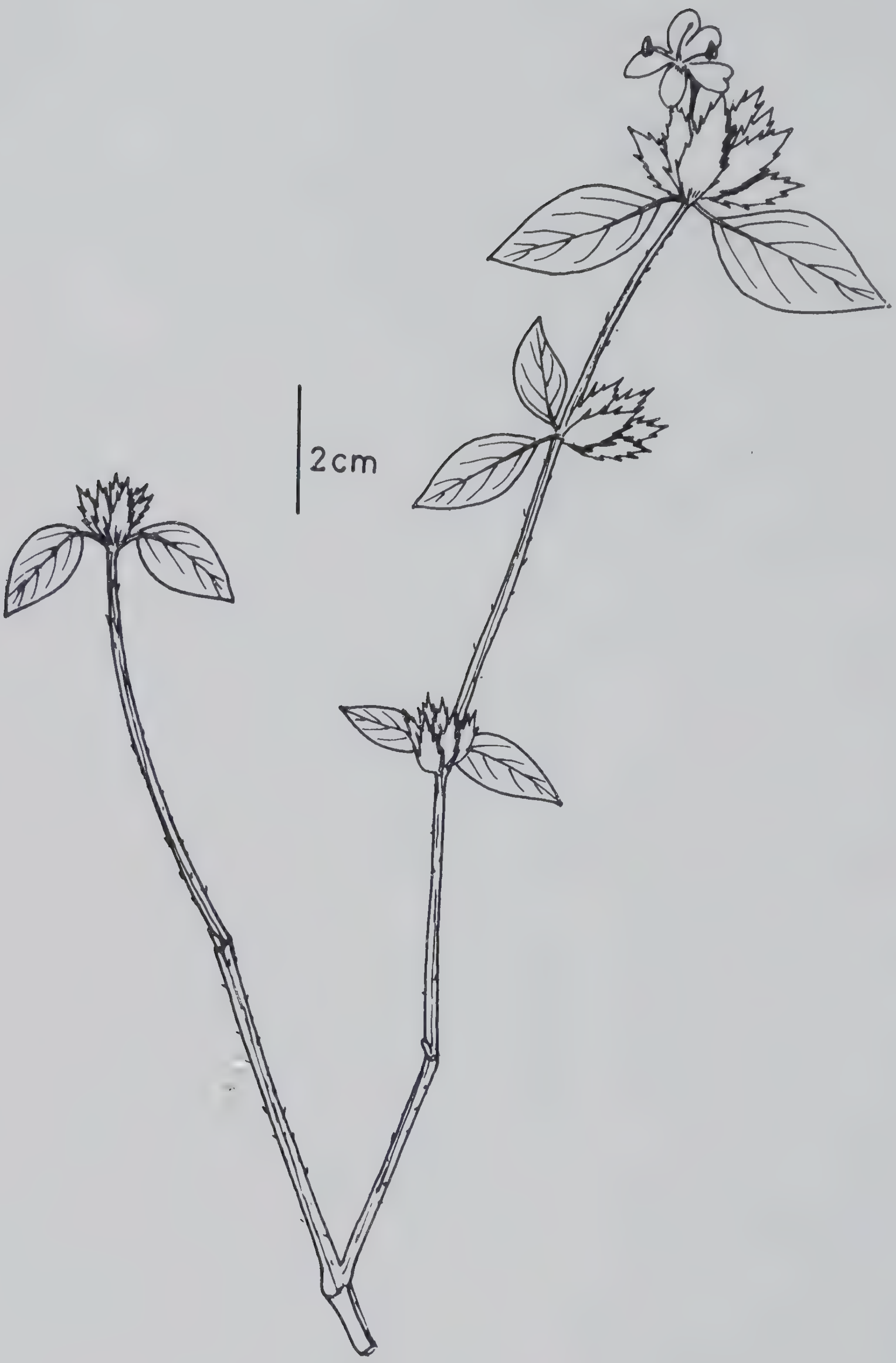
Local name : Bilayati gokhru
Characteristics : An erect or decumbent, branched herb with succulent stems and yellowish orange, woody roots. Leaves opposite, ovate, toothed at margin. Flowers yellow, glandular-hairy; corolla tubular. Fruits 4-sided, abruptly narrow to the base, with 4 horizontal spines.
Habitat : Open areas throughout the uplands; not common.
Fl. & Fr. : August to November.
Reference : FBI. 4:386; FD. 262; FID. 293; FNER. 307



55. ACANTHACEAE

ADHATODA Mill.
Adhatoda zeylanica Medic.

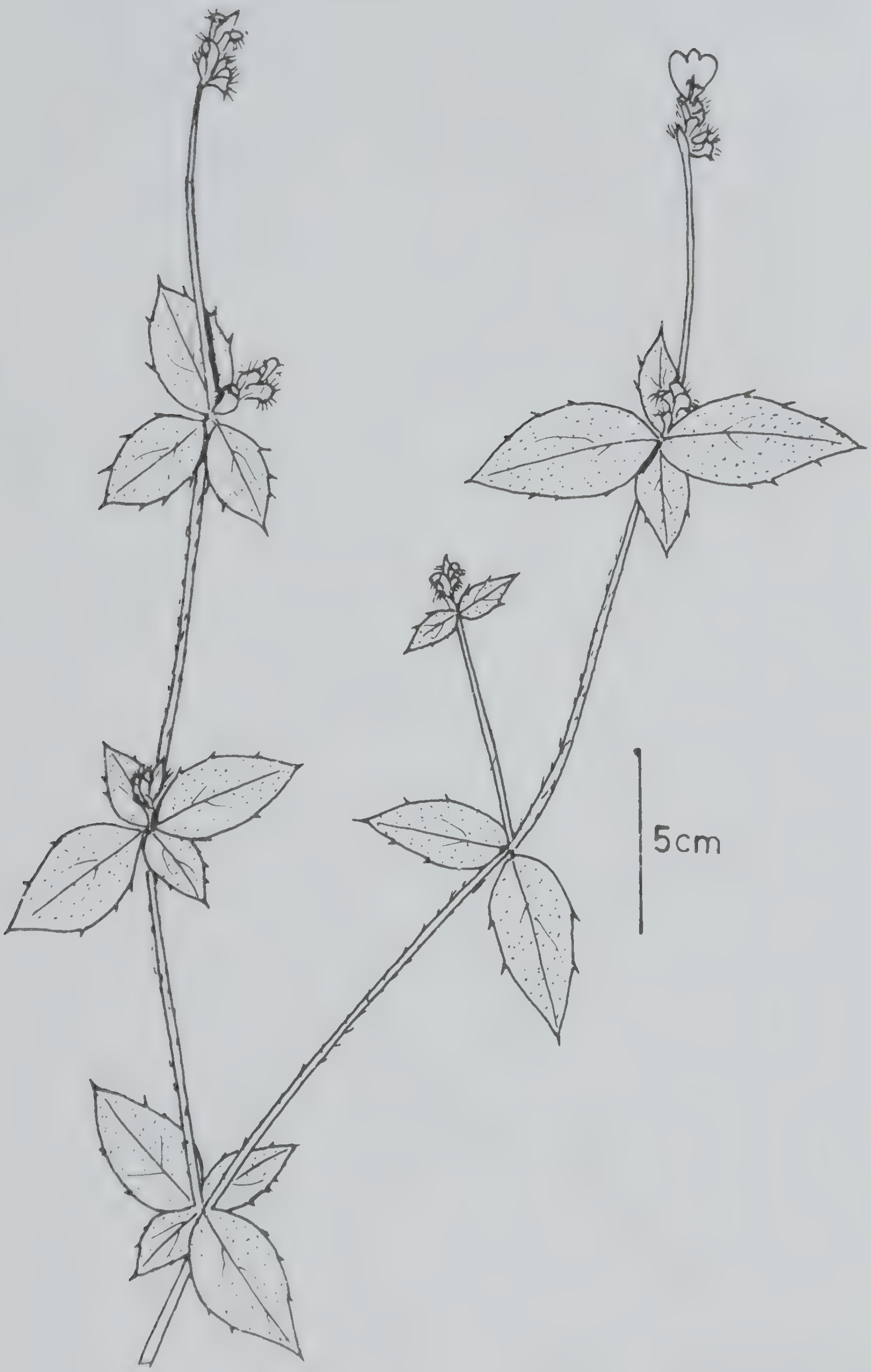
Synonyms	:	*A. vasica* Nees *Justicia adhatoda* L.
Local name	:	Pia basoro
Characteristics	:	An evergreen shrub, 1 to 2 m high. Leaves elliptic-lanceolate, acuminate at apex. Flowers white with pink to purple stripes, in dense axillary spikes; bracts conspicuous. Capsule about 2 cm long, shortly and bluntly pointed. Seeds rugose.
Habitat	:	Dry, sandy soil.
Fl. & Fr.	:	November to May.
Reference	:	FBI. 4:540; FUGP. 2:207; FD. 271; FHD. 540; FNER. 311



BARLERIA L.

Barleria cristata L.

Characteristics	:	An erect or diffuse undershrub, up to 1 m high. Stem 4-angled, with appressed hairs. Leaves elliptic-oblong, acute at apex, tapering towards the base. Flowers white or purple, 1 to 3 in leaf axils or in dense axillary or terminal spikes. Fruit a capsule, 1.5 to 2 cm long, with 4 seeds.
Habitat	:	Uplands; probably planted.
Fl. & Fr.	:	October to February.
Reference	:	FBI. 4:488; FUGP. 2:201; FD. 274; HFD. 378



BLEPHARIS Juss.

Blepharis maderaspatensis (L.) Heyne ex Roth

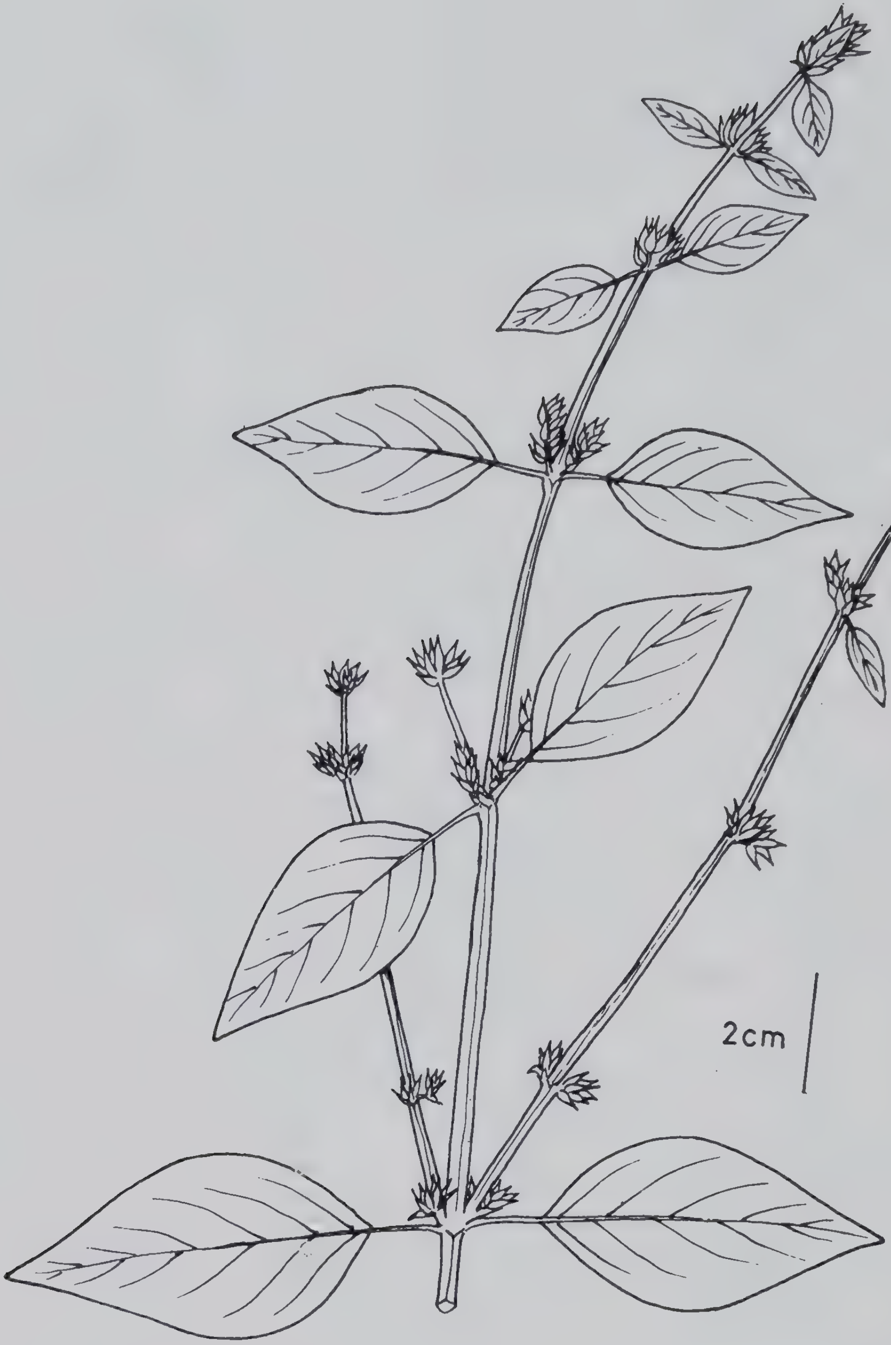
Synonym : *B. boerhaviaefolia* Pers.

Characteristics : A prostrate or scrambling herb with rough hairy stem, rooting at lower nodes. Leaves oblong-lanceolate, cuneate at base, acute-acuminate at apex, arranged in whorls of 4 at each node. Flowers pale blue, solitary or 2 to 3 in leaf axils; bracts spiny. Fruit a glabrous capsule. Seeds 2, with short white hairs.

Habitat : Open areas of dry, sandy soil; scattered throughout the uplands.

Fl. & Fr. : September to February.

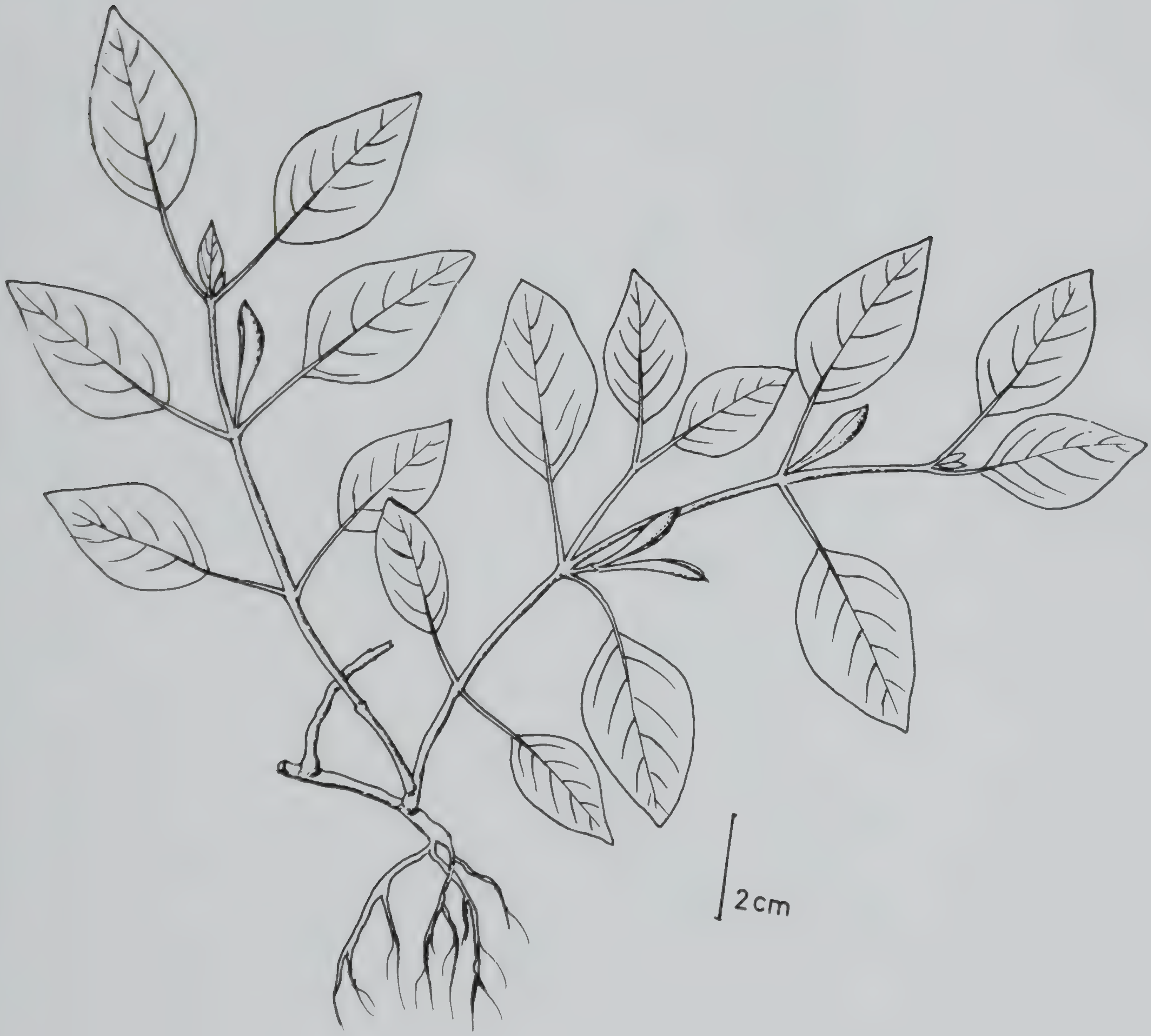
Reference : FBI. 4:478; FUGP. 2:183; FD. 266; FNER. 314



DICLIPTERA Juss.

Dicliptera verticillata (Forsk.) Christen

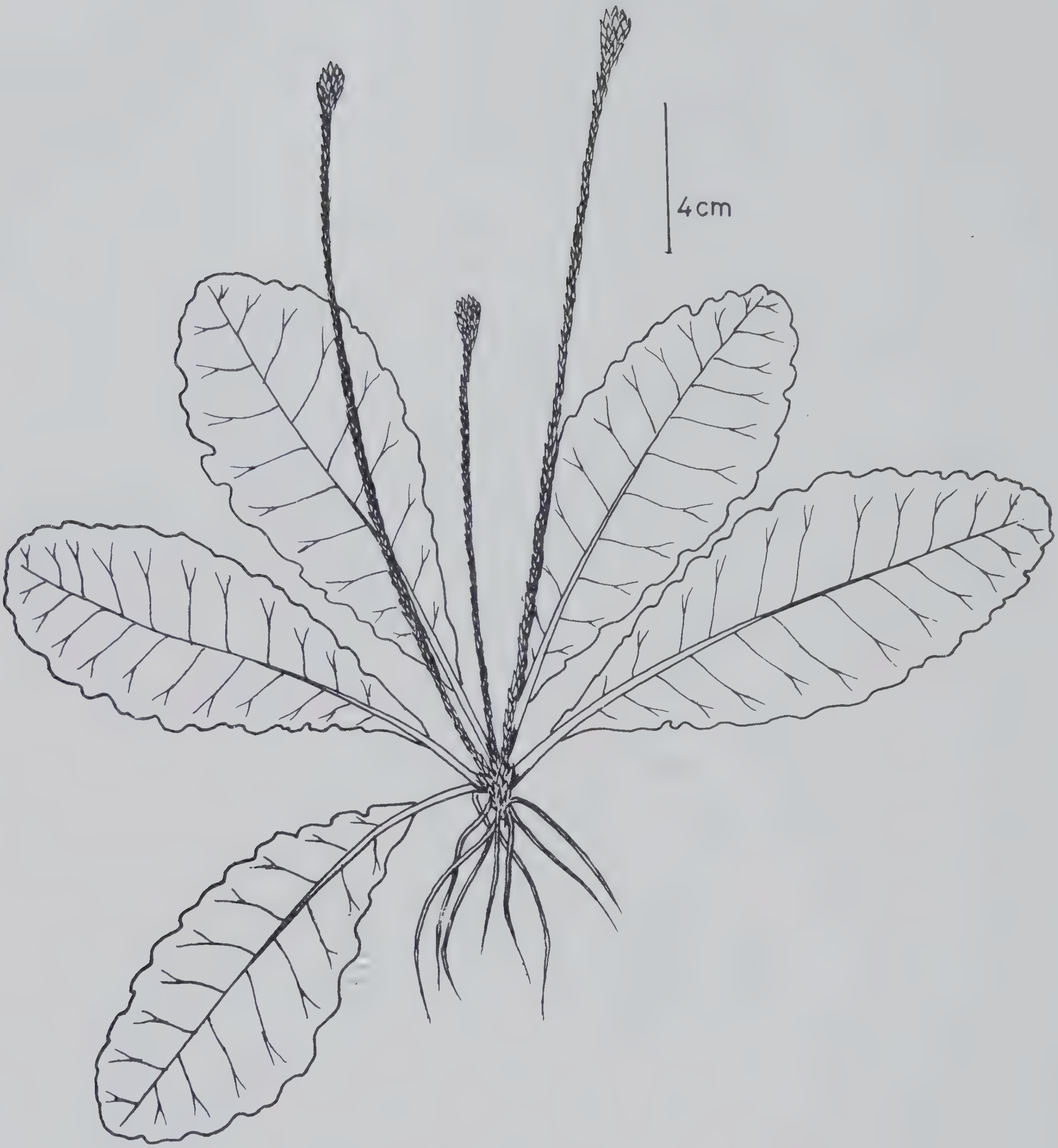
Synonym	:	*D. micranthes* Nees
Characteristics	:	An erect or procumbent, branched herb with angular stems; glabrous to slightly hairy below the nodes. Leaves ovate-elliptic, acuminate at apex. Flowers pink or purple, arranged in dense, globose clusters in leaf axils; calyx hairy; bracts scabrous. Fruit a capsule, 3 mm long, with 4 rugose seeds.
Habitat	:	Common in wet shady area during cold season.
Fl. & Fr.	:	July to April.
Reference	:	FBI. 4: 553; FID. 300; FBR. 178
Note	:	In later stage the plant loses all the leaves and appears entirely different from the leafy early stage.



DIPTERACANTHUS Nees

Dipteracanthus prostratus (Poir.) Nees

Synonym	:	*Ruellia prostrata* Poir.
Characteristics	:	A straggling, perennial herb with woody base. Leaves elliptic; petioles hairy; margins entire. Flowers pale purple, subsessile, solitary or 2 or 3 in leaf axils; petals hairy outside. Fruit a hairy, clavate capsule. Seeds hairy on margin.
Habitat	:	Shady areas along roadside.
Fl. & Fr.	:	July to April.
Reference	:	FBI. 4:411; FD. 273; FNER. 316; FTD. 146



ELYTRARIA Mich.

Elytraria acaulis (L. f.) Kuntze

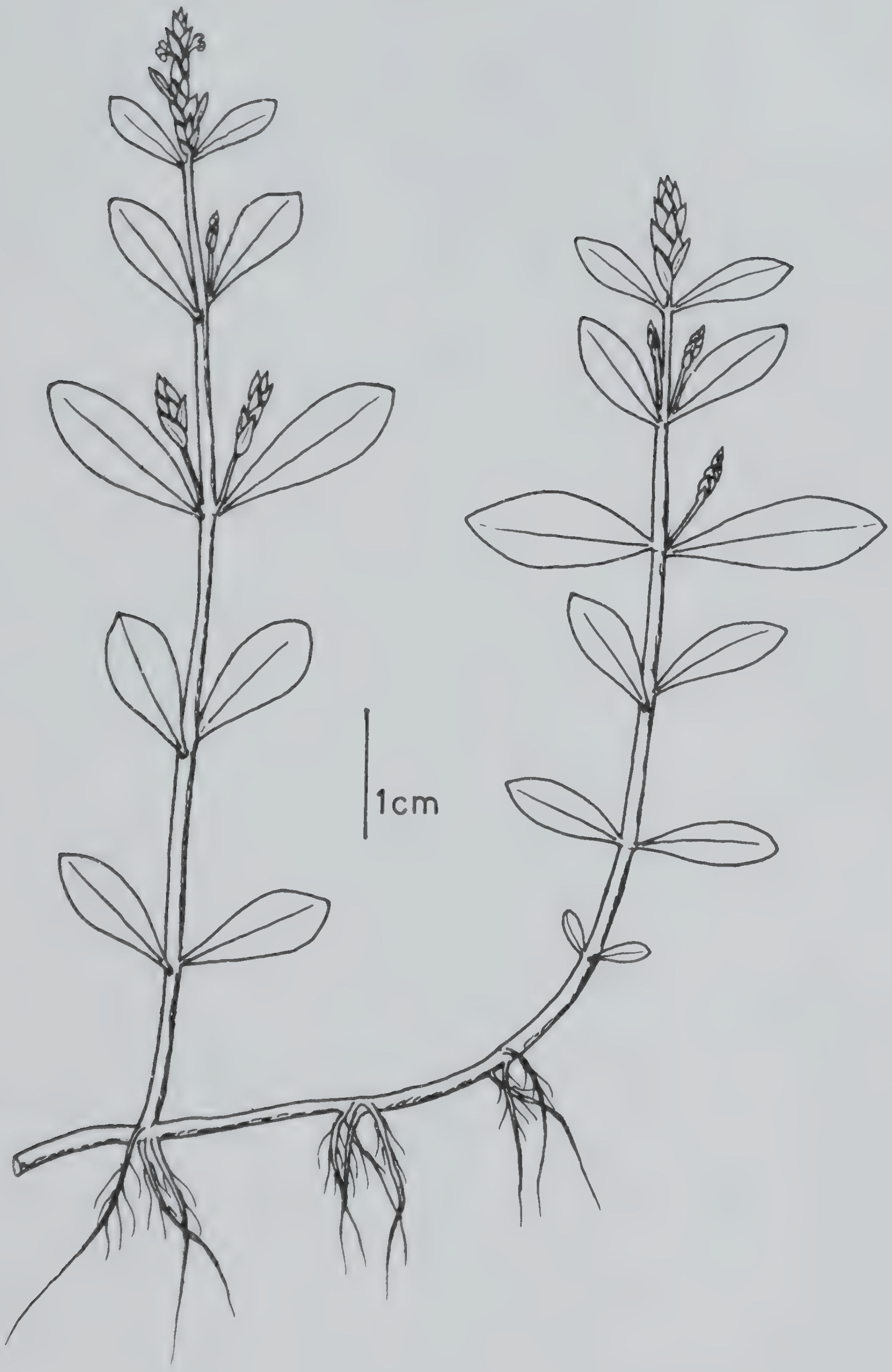
Synonym : *Tubiflora acaulis* (L. f.) Kuntze

Characteristics : A herbaceous perennial with short, vertical rhizome. Leaves obovate, up to 25 cm long and 9 cm wide, tapering towards base into a short hairy petiole, arranged in a basal rosette; margin shallowly lobed. Flowers white or pale blue; arranged on spikes, arising from the centre of the rosette. Fruit a 6 to 8 mm long capsule with many seeds.

Habitat : Shady areas throughout the uplands.

Fl. & Fr. : August to November.

Reference : FBI. 4:394; FUGP. 2:180; FD. 265; FNER. 317



HEMIADELPHIS Nees

Hemiadelphis polyspermus (Roxb.) Nees

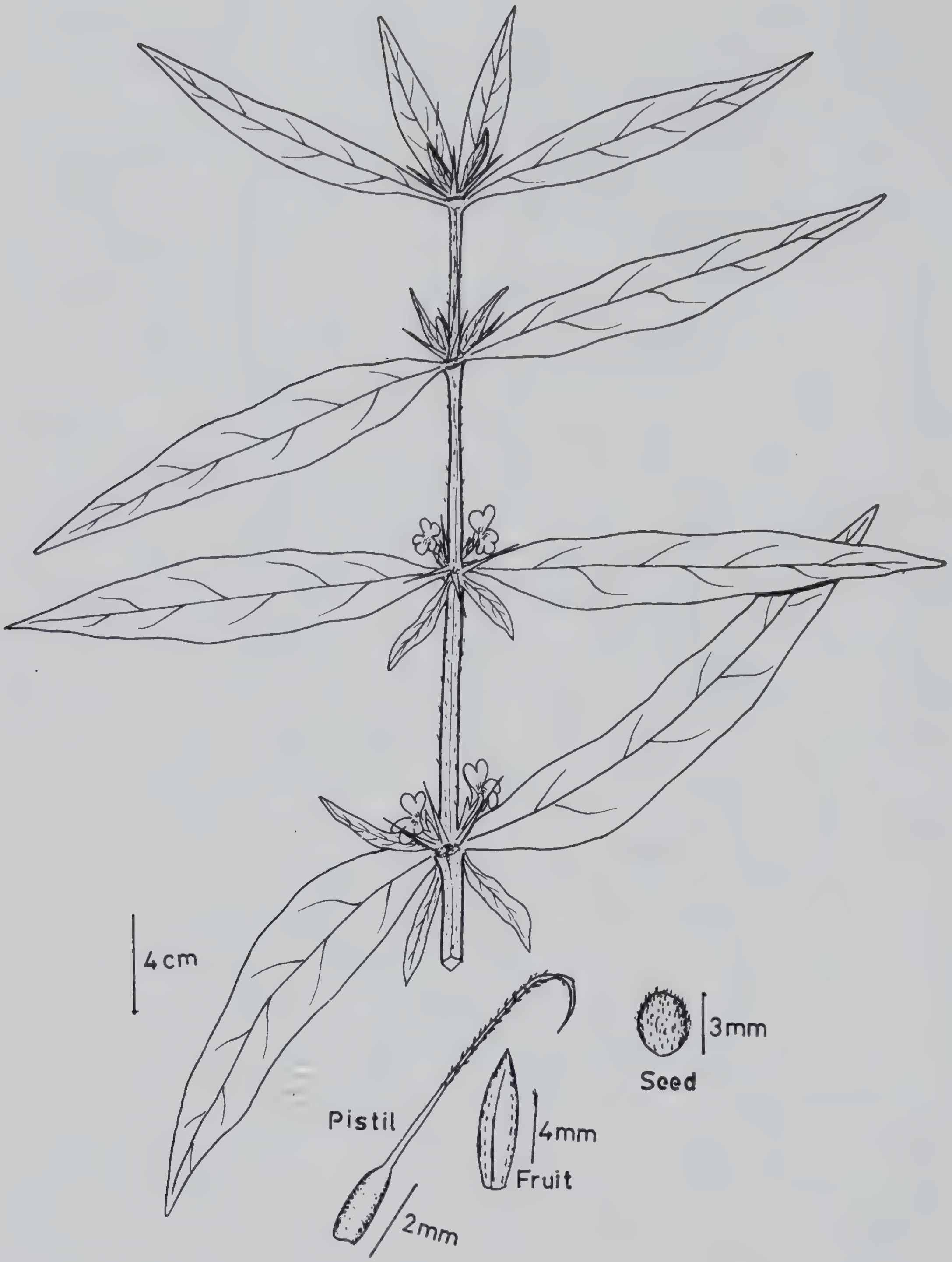
Synonym : *Hygrophila polysperma* (Roxb.) T. Anders.

Characteristics : A creeping herb with prostrate to erect branches, rooting at nodes. Leaves sub-sessile, elliptic-lanceolate. Flowers white to pale blue, arranged in dense, terminal spikes; bracts leafy. Fruit a glabrous, oblong capsule with many seeds.

Habitat : Marshy areas and wet soil along the borders of aquatic area.

Fl. & Fr. : July to April.

Reference : FBI. 4:406; FUGP. 2:185; FD. 269; FID. 302



HYGROPHILA R. Br.

Hygrophila auriculata (Schum.) Heine

Synonyms : *H. spinosa* T. Anders.
Asteracantha longifolia (L.) Nees

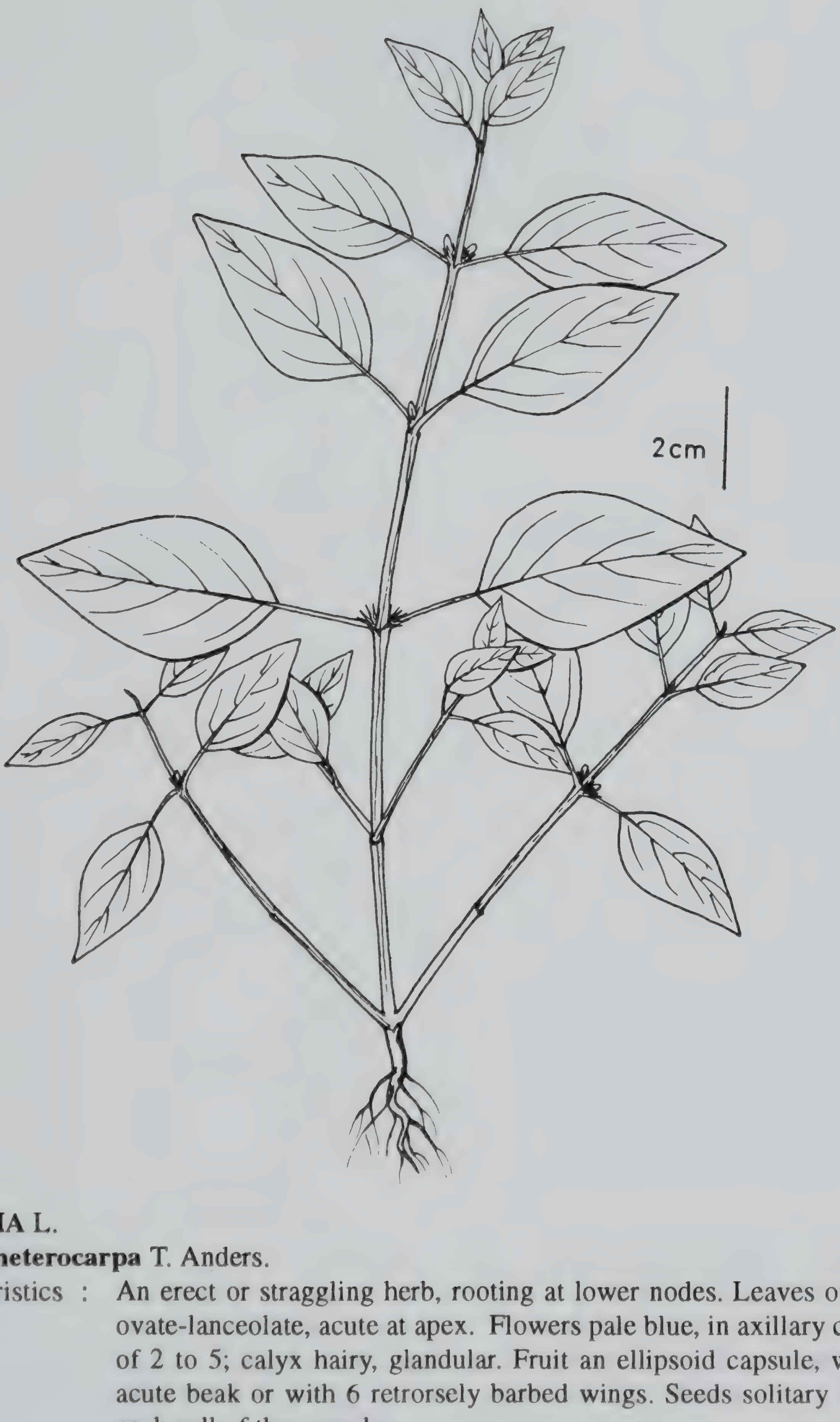
Local name : Oont Katera

Characteristics : A stout, erect, hispid herb. Leaves sessile, lanceolate, usually 6 at each node with the outer 2 larger in size. A whorl of 6 yellow spines present at each node. Flowers bright blue or purple, in sessile, axillary whorls. Fruit a linear-oblong capsule with 4 to 6 seeds.

Habitat : Margins of monsoonal pools and along the dykes.

Fl. & Fr. : September to March.

Reference : FBI. 4:408; FUGP. 2:184; FD. 267; FID. 302; FBR. 181



JUSTICIA L.

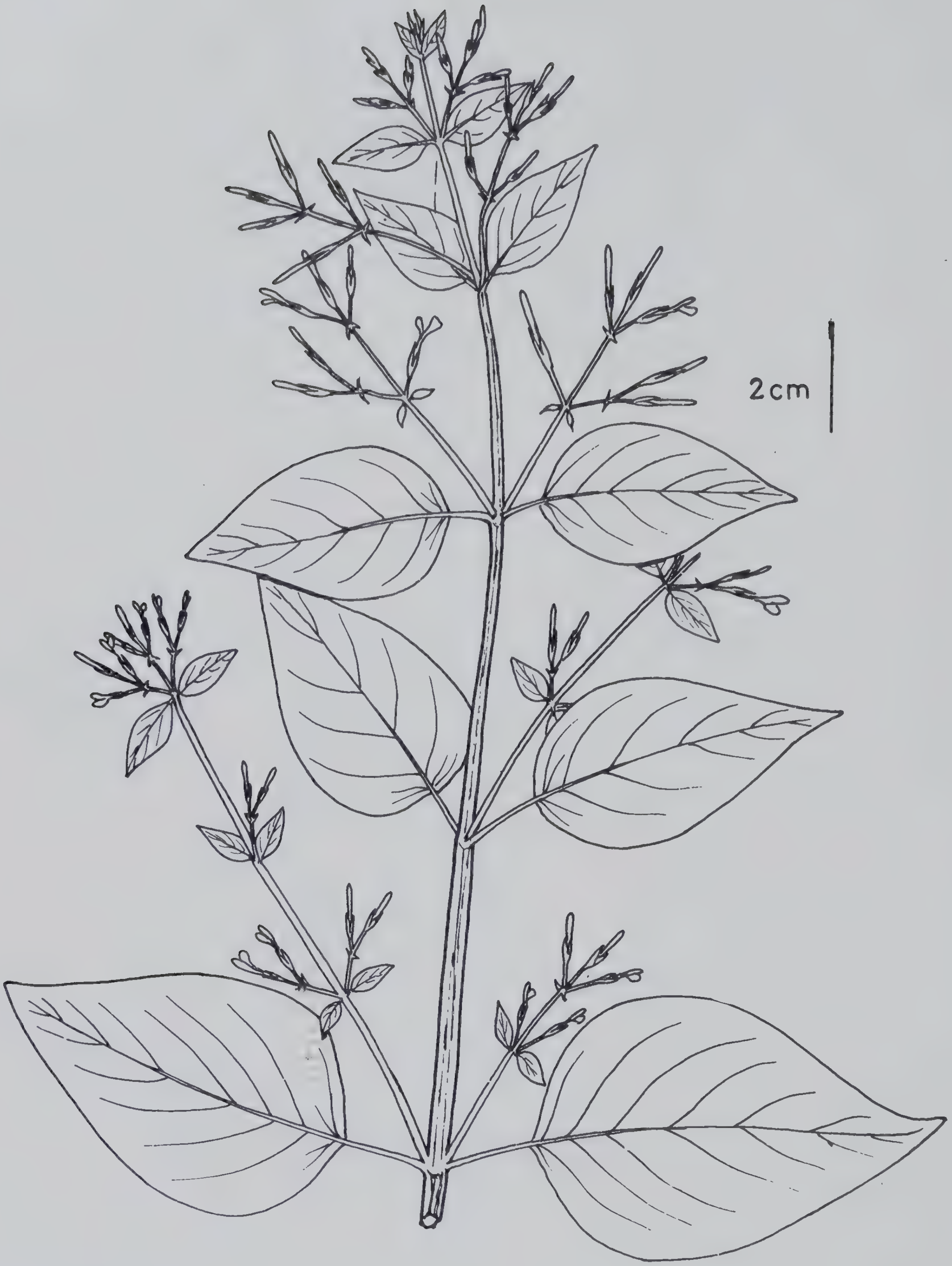
Justicia heterocarpa T. Anders.

Characteristics : An erect or straggling herb, rooting at lower nodes. Leaves ovate or ovate-lanceolate, acute at apex. Flowers pale blue, in axillary clusters of 2 to 5; calyx hairy, glandular. Fruit an ellipsoid capsule, with an acute beak or with 6 retrorsely barbed wings. Seeds solitary or 2 in each cell of the capsule.

Habitat : Moist shady areas; rare in the Park.

Fl. & Fr. : August to November.

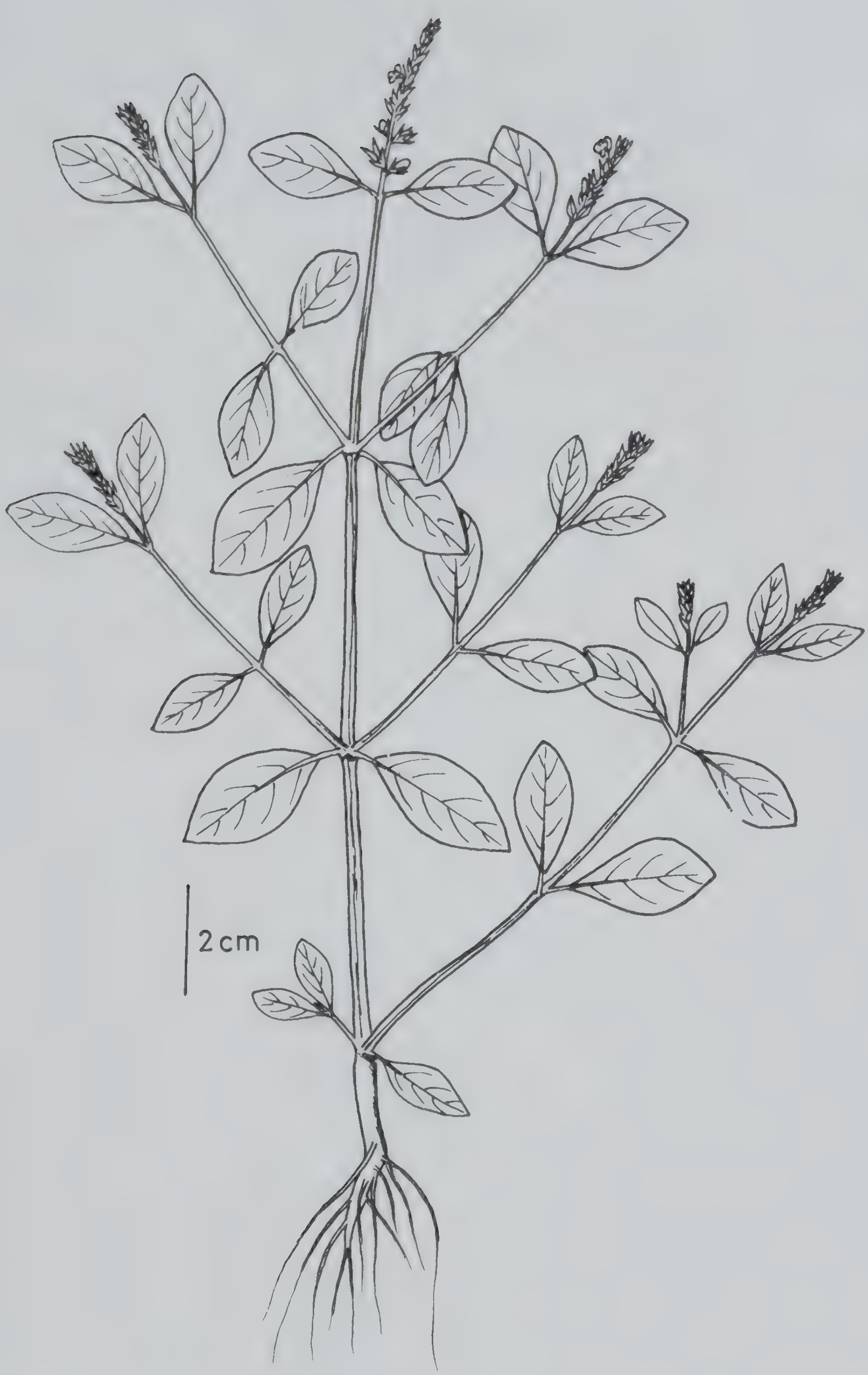
Reference : FBI. 4:531; FID. 303; FNER. 319; FTD. 148



PERISTROPHE Nees

Peristrophe paniculata (Forssk.) Brummitt

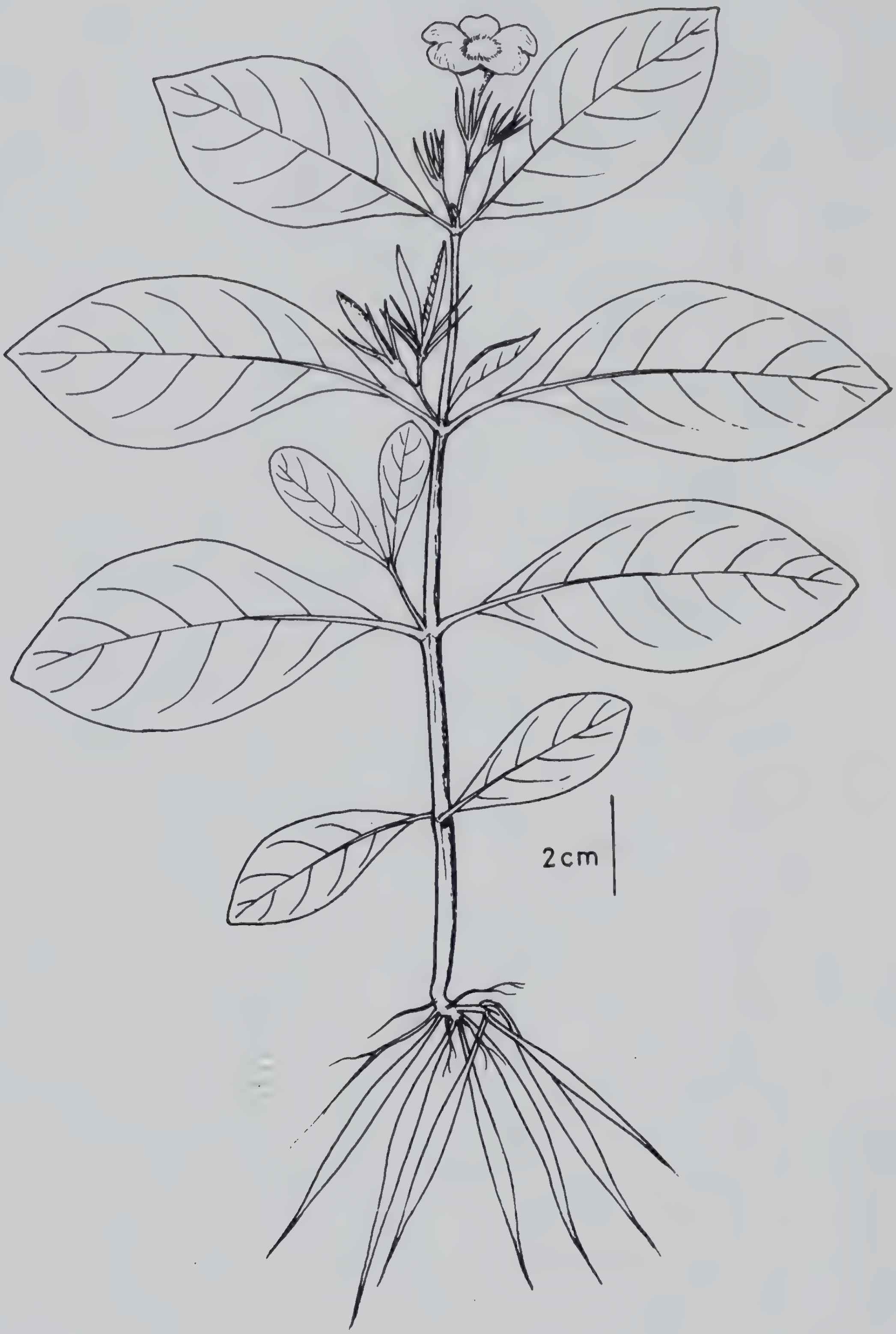
Synonym	:	*P. bicalyculata* (Retz.) Nees
Characteristics	:	An erect, branched herb with 6-angled stem. Leaves opposite ovate or elliptic, acuminate at apex. Flowers rosy-white, in axillary panicle; corolla 2-lipped. Fruit a pointed capsule with glandular, hairy seeds.
Habitat	:	Shady areas throughout the uplands and along roadsides.
Fl.& Fr.	:	September to December.
Reference	:	FBI. 4: 554; FUGP. 2:210; FD. 269; FID. 307; FTN 1, 2:155



ROSTELLULARIA Reichenb.

Rostellularia quinqueangularis (Koen.) Nees var. **peploides** (Nees) Raizada

Synonym	:	*Justicia quinqueangularis* Koen. var. *peploides* (Nees) Clarke
Characteristics	:	An erect, glabrous or sparsely hairy herb with tuberous roots. Leaves oblong, narrow at base. Flowers blue-violet, in axillary pairs or cymes of 3 to 5; rarely solitary. Fruit a linear capsule, pointed at both ends; seeds many.
Habitat	:	Moist, shady areas along roadsides.
Fl. & Fr.	:	May to December.
Reference	:	FD. 272; FNER. 322; FBR. 184



RUELLIA L.
Ruellia tuberosa L.

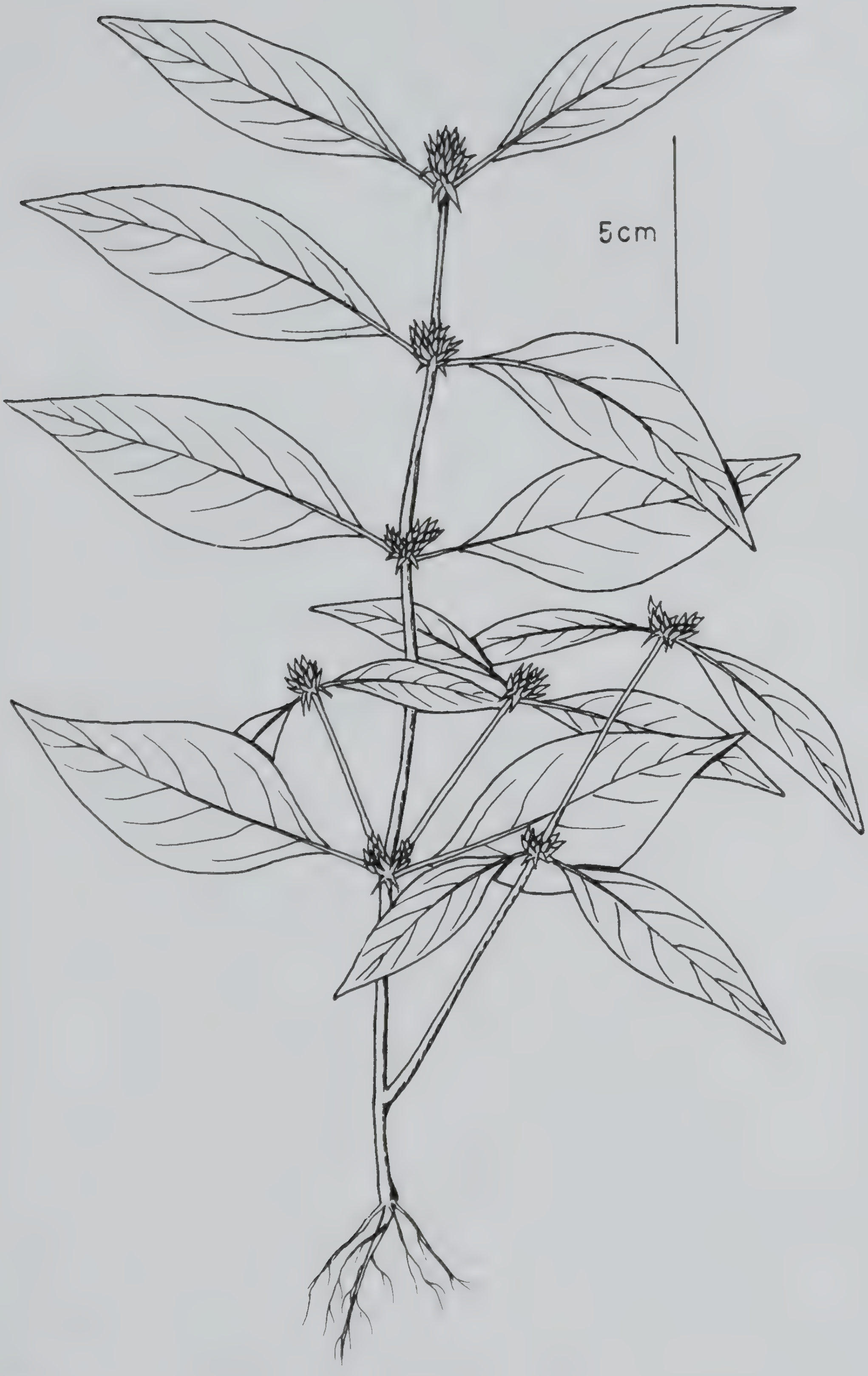
Local name : Chatakni phali

Characteristics : An erect, glabrous or sparsely hairy, perennial herb with elongated root tubers. Stem stout, 4-angular. Leaves oblong, narrowed to the base. Flowers blue-violet, usually in pairs or in cymes of 1 to 5, in the axils of leaves. Fruit a linear capsule, pointed at both ends. Seeds many.

Habitat : Moist, shady areas along the roadside.

Fl. & Fr. : August to November.

Reference : FD. 272; FBR 184



RUNGIA Nees

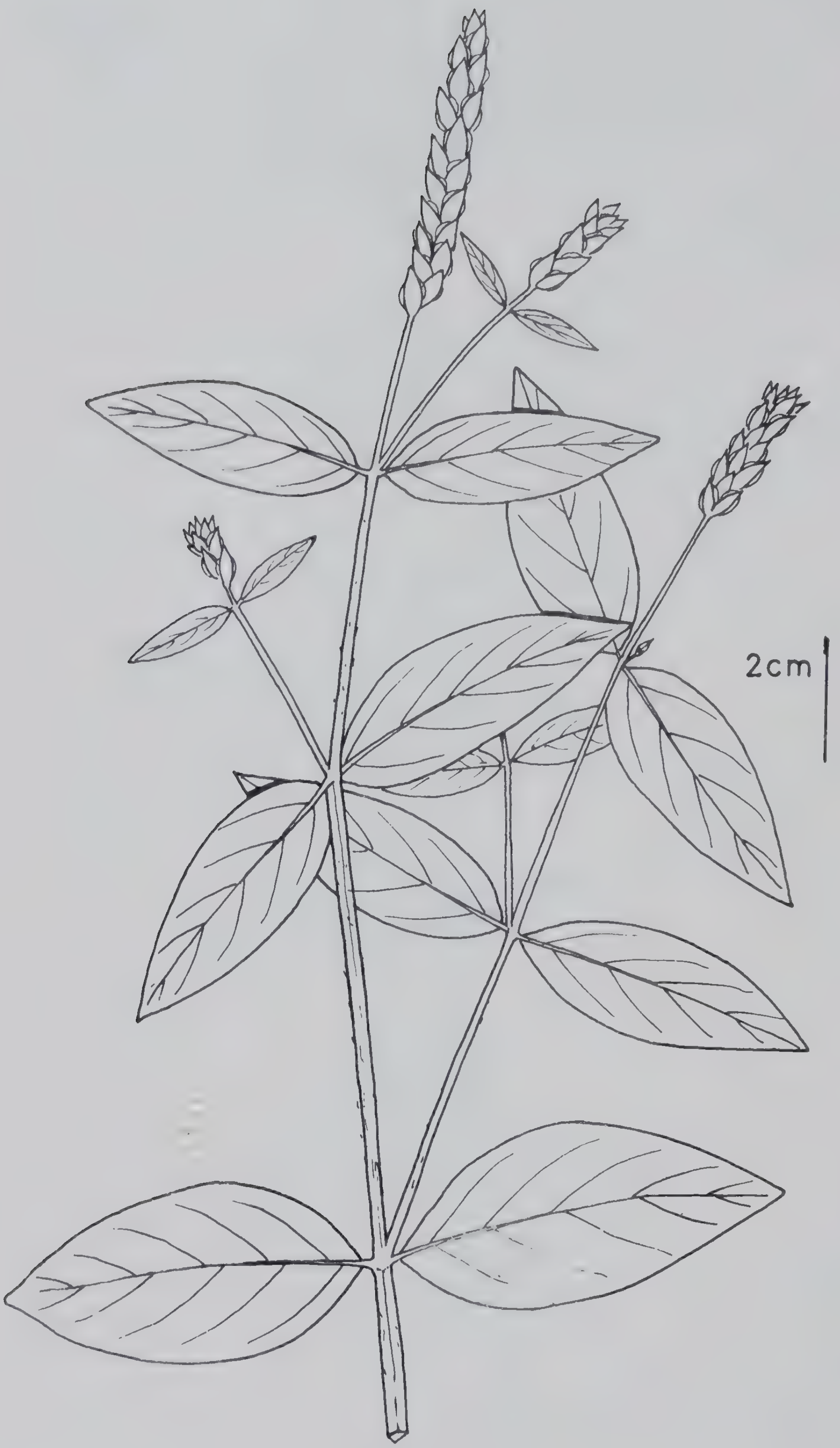
Rungia pectinata (L.) Nees

Characteristics : A branched, procumbent herb. Leaves ovate-elliptic, up to 5 cm long. Flowers small, bluish, arranged in one sided spikes; fertile bracts ovate, larger than barren ones. Fruit an ovoid capsule with 4 yellow seeds.

Habitat : Moist shady areas along the roadsides.

Fl. & Fr. : October to March.

Reference : FBI. 4: 550; FUGP. 2:212; FD. 269; FBR. 185



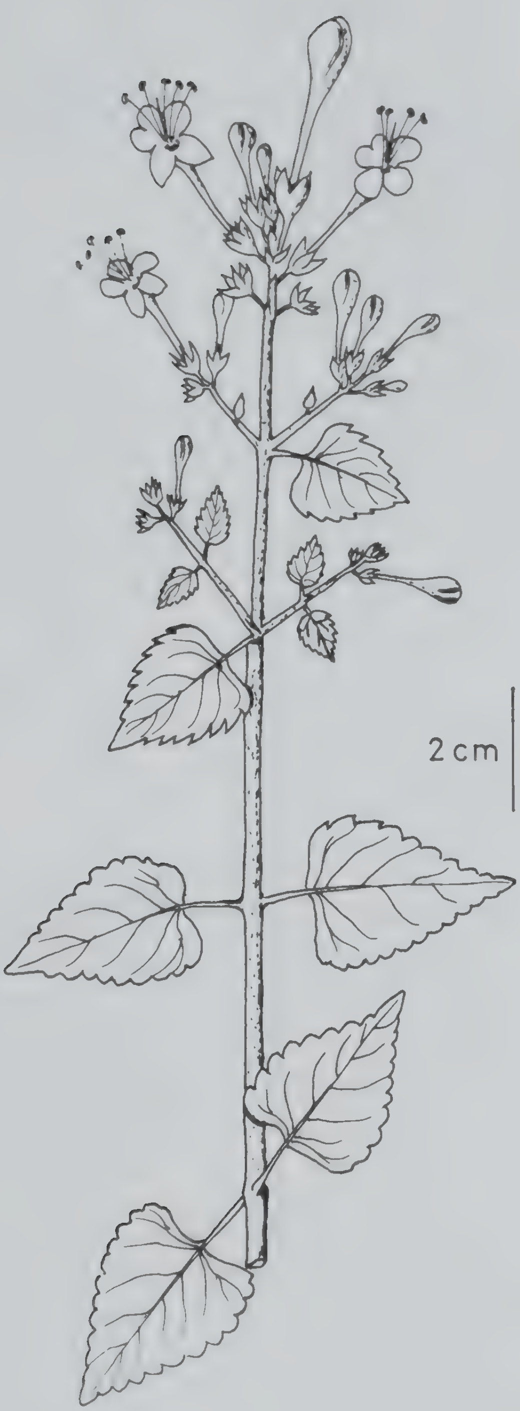
Rungia repens (L.) Nees

Characteristics : An erect or procumbent herb rooting at lower nodes. Stem sparsely hairy. Leaves subsessile, lanceolate, up to 8 cm long. Flowers pinkish-violet, in terminal spikes; bracts broad, elliptic, winged; corolla hairy. Fruit a hairy capsule with rugose seeds.

Habitat : Moist shady areas throughout the uplands and along the roadsides.

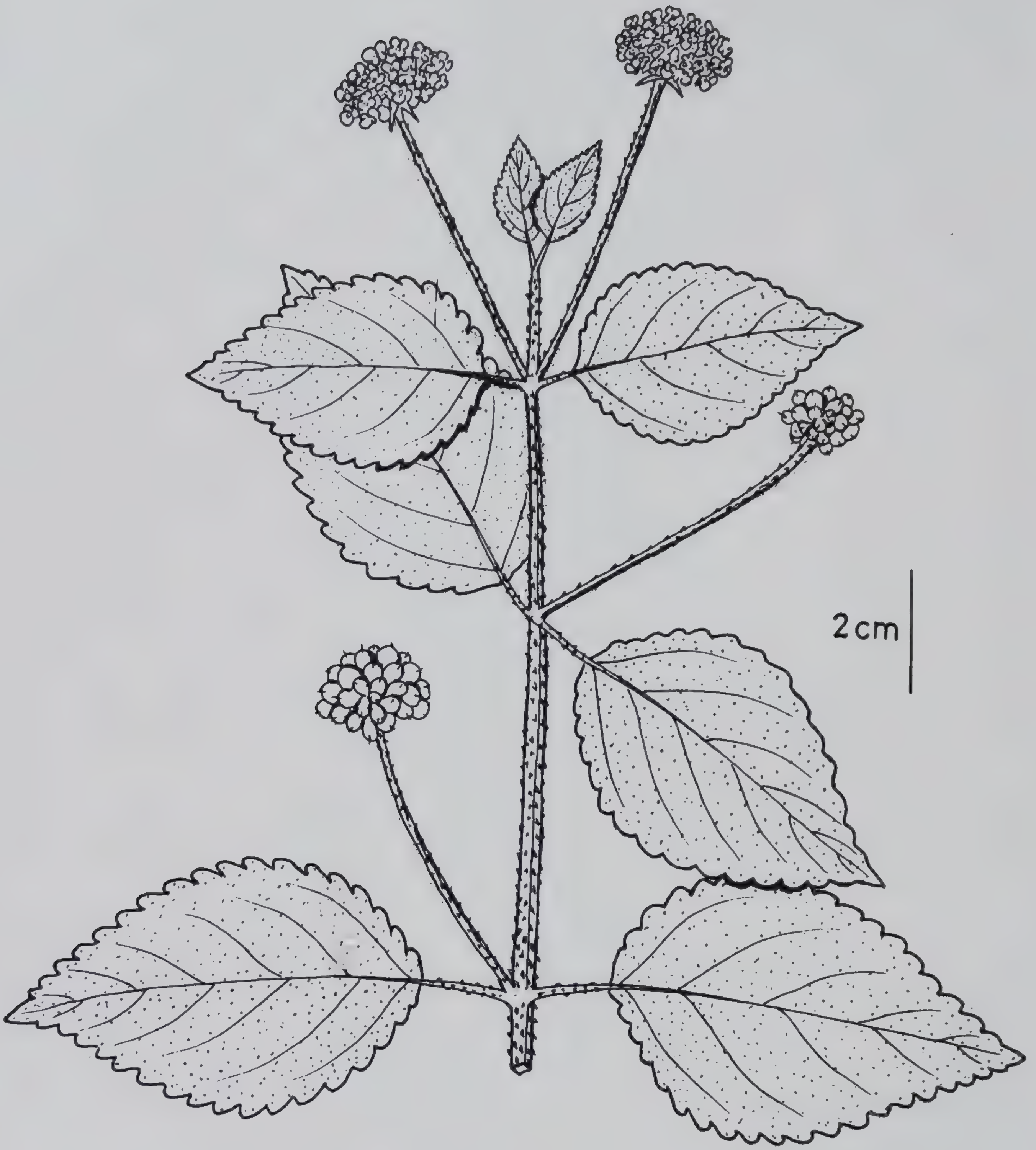
Fl. & Fr. : September to March.

Reference : FBI. 4: 549; FUGP. 2:211; FD. 270; FBR. 186



56. VERBENACEAE

CLERODENDRUM Burm. f. ex L.
Clerodendrum phlomidis L. f.
Synonym : *C. multiflorum* (Burm. f.) Kuntze
Local name : Inni
Characteristics : A shrub or small tree, up to 4 m high. Branches whitish-grey. Leaves ovate, sparsely hairy, with black dots beneath; margin entire, undulate or toothed. Flowers white, fragrant, in panicle; stamens exserted. Fruit a 4-lobed drupe. Seeds whitish, oblong.
Habitat : Along roadsides and scattered throughout the upland; in dry sandy soil.
Fl. & Fr. : September to March.
Reference : FBI. 4: 590; FUGP. 2:225; FD. 283; FID. 309; FTD.152



LANTANA L.

Lantana camara L. var. **aculeata** (L.) Mold.

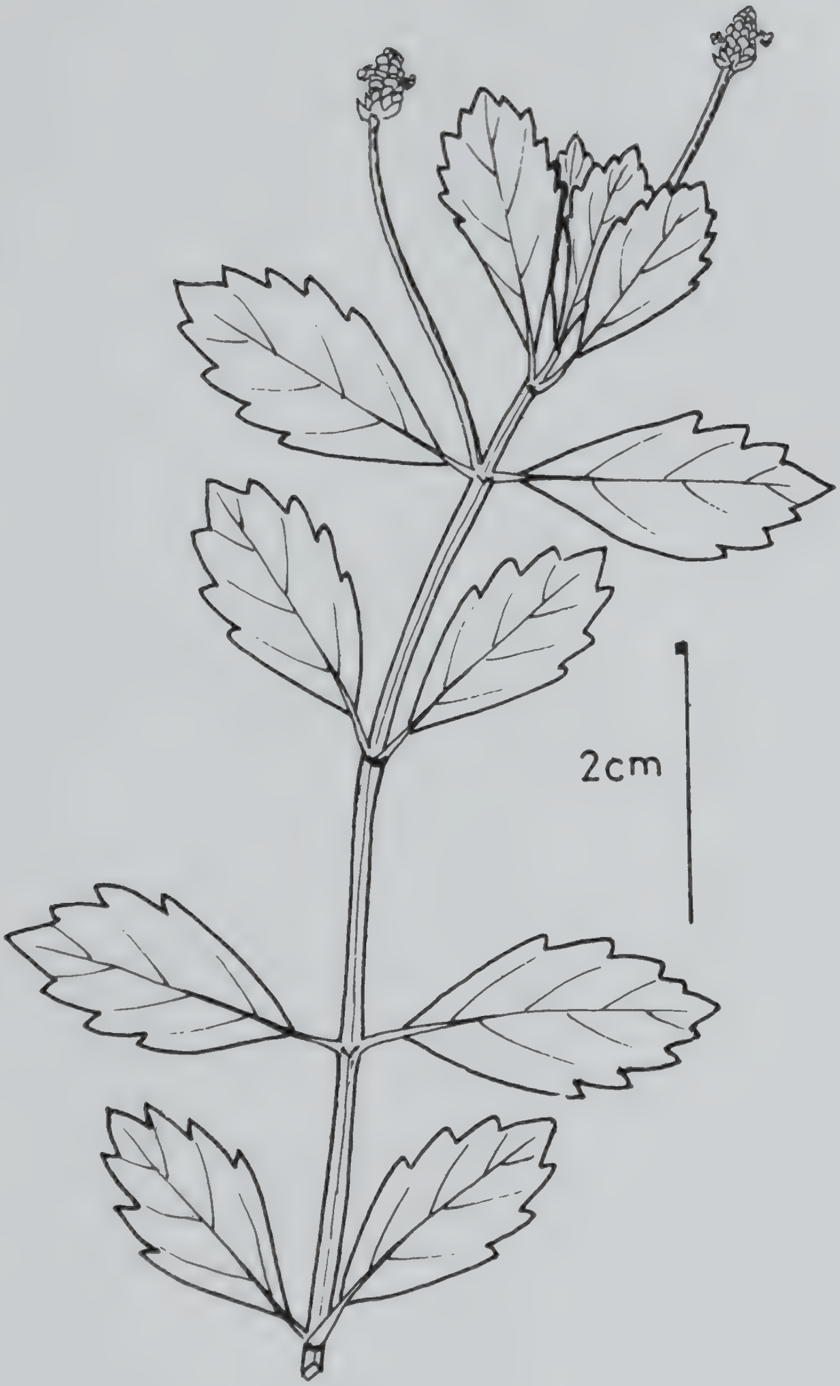
Local name : Leltena

Characteristics : A much branched shrub with short, recurved prickles on the stem. Leaves up to 7 cm long, ovate, crenate-serrate at margin. Flowers red, orange or yellow; crowded on a long peduncled, capitate spike. Fruit a globose drupe, black when ripe.

Habitat : Common in the understory of wooded parts of the Park.

Fl. & Fr. : June to December.

Reference : FBI. 4:562; FD. 277; FBR. 187



PHYLA Lour.

Phyla nodiflora (L.) Greene

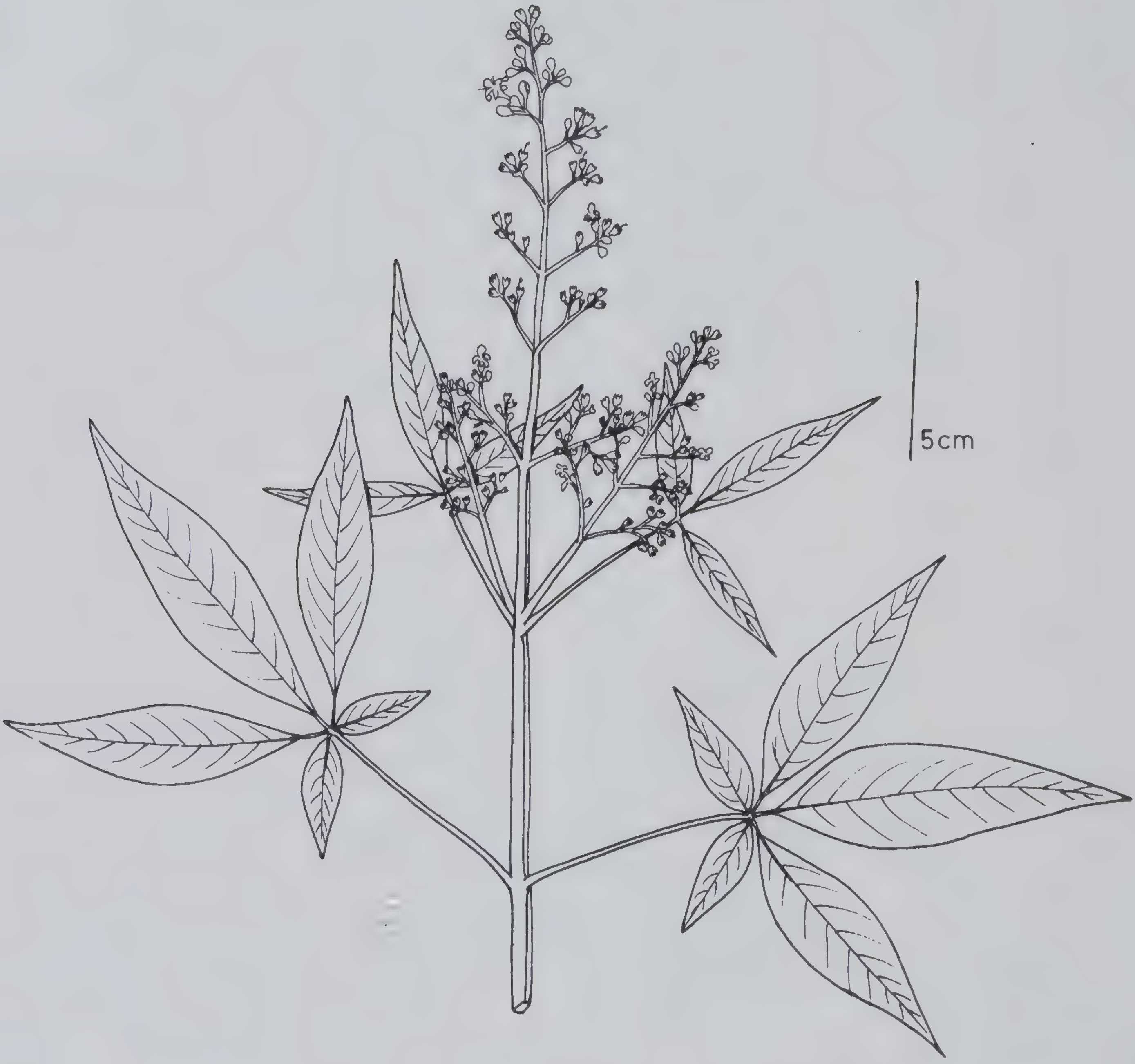
Synonym : *Lippia nodiflora* A. Rich.

Characteristics : A branched, creeping herb, rooting at the nodes. Leaves opposite, spathulate to obovate, up to 3 cm long, narrow at the base. Flowers white to pale pink, crowded on a short axillary spike. Fruits globose-oblong, with 2 seeds.

Habitat : Moist shaded areas; common along the banks of aquatic area.

Fl. & Fr. : Throughout the year.

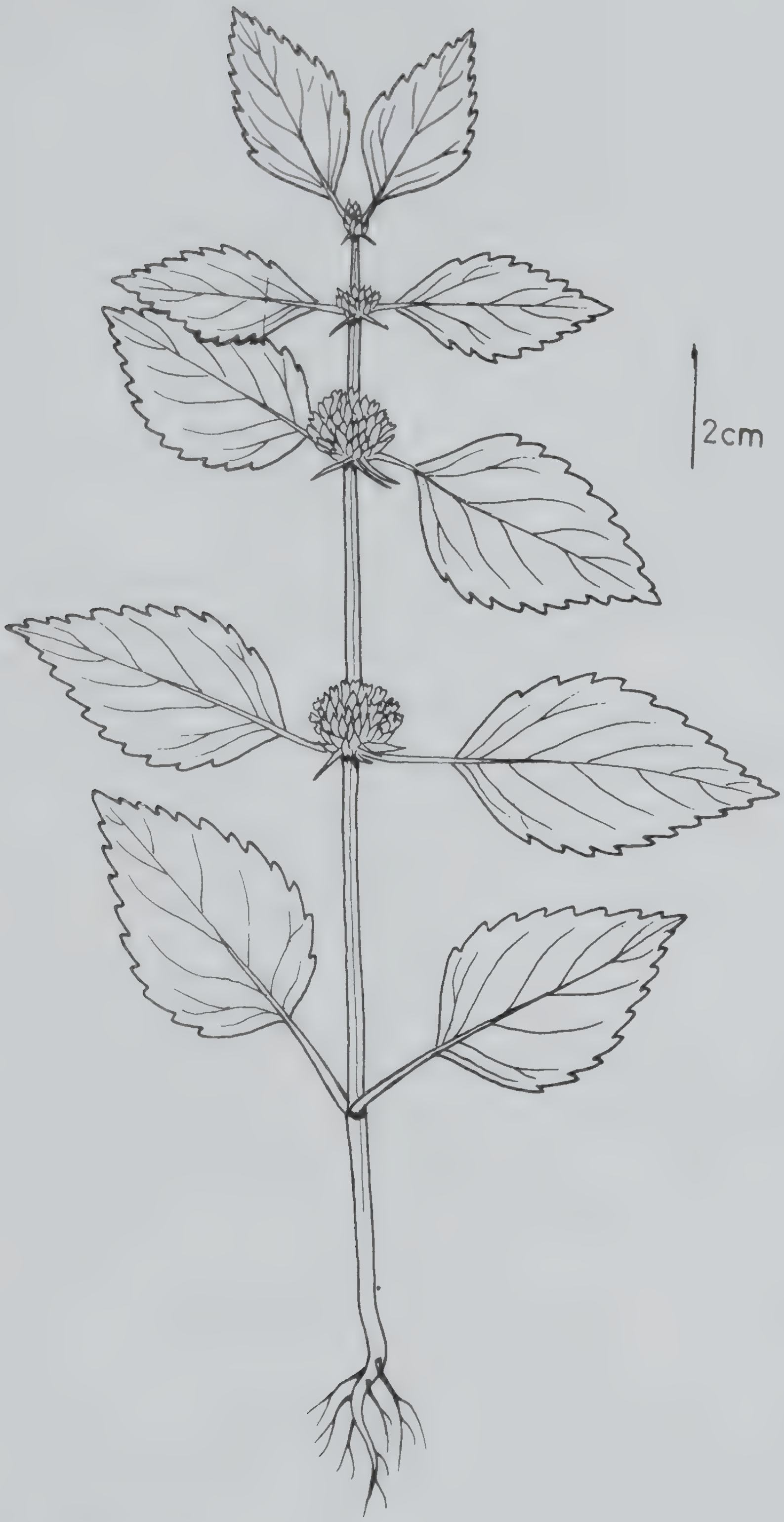
Reference : FBI.4:563; FUGP. 2:217; FD. 276; FID. 310; FNER. 331



VITEX L.

Vitex negundo L.

Characteristics	:	A shrub or small tree with quadrangular, densely white-tomentose branches. Leaves digitately compound with 3 to 5 leaflets; leaflets lanceolate, white-tomentose beneath. Flowers white to lavender-blue, clustered in pyramidal panicles. Fruit a globular drupe, 3 mm across, enclosed by enlarged calyx; fleshy and black when ripe.
Habitat	:	Planted in sandy soil.
Fl. & Fr.	:	Throughout the year.
Reference	:	FBI. 4:583; FUGP. 2:224; FD. 281; FNER. 333; FTD. 154



57. LAMIACEAE (LABIATAE)

LEUCAS R. Br.

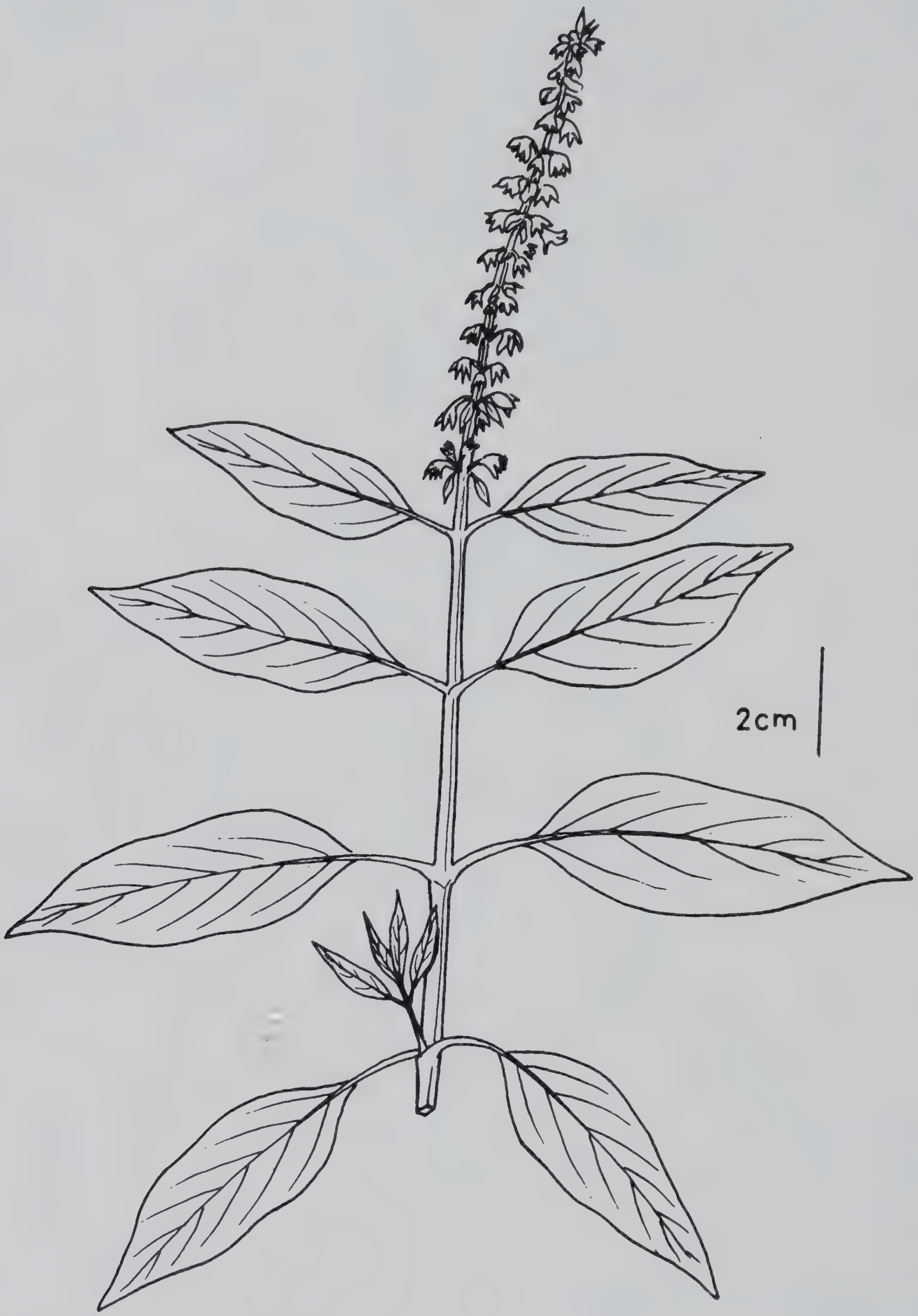
Leucas urticaefolia (Vahl) R. Br.

Characteristics : An erect, hairy herb up to 150 cm high. Leaves opposite, ovate, coarsely toothed at margin. Flowers white, arranged in dense, globose whorls; corolla hairy, with 3-lobed lower lip. Seeds trigonous, smooth, brown.

Habitat : Open areas throughout the uplands; not common.

Fl. & Fr. : July to February.

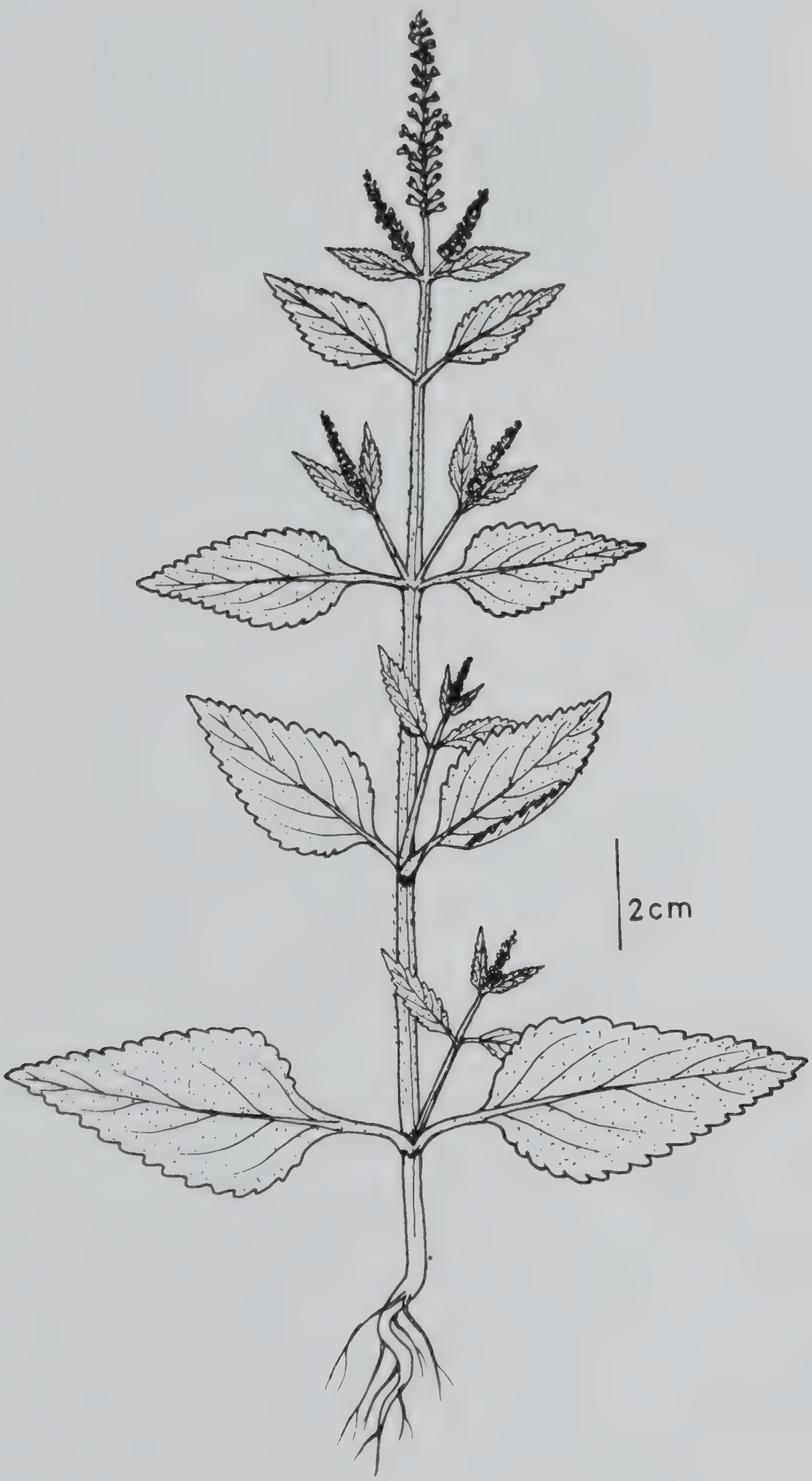
Reference : FBI. 4:680; FUGP. 2:249; FD. 290; FID. 314; FTD. 158



OCIMUM L.

Ocimum basilicum L.

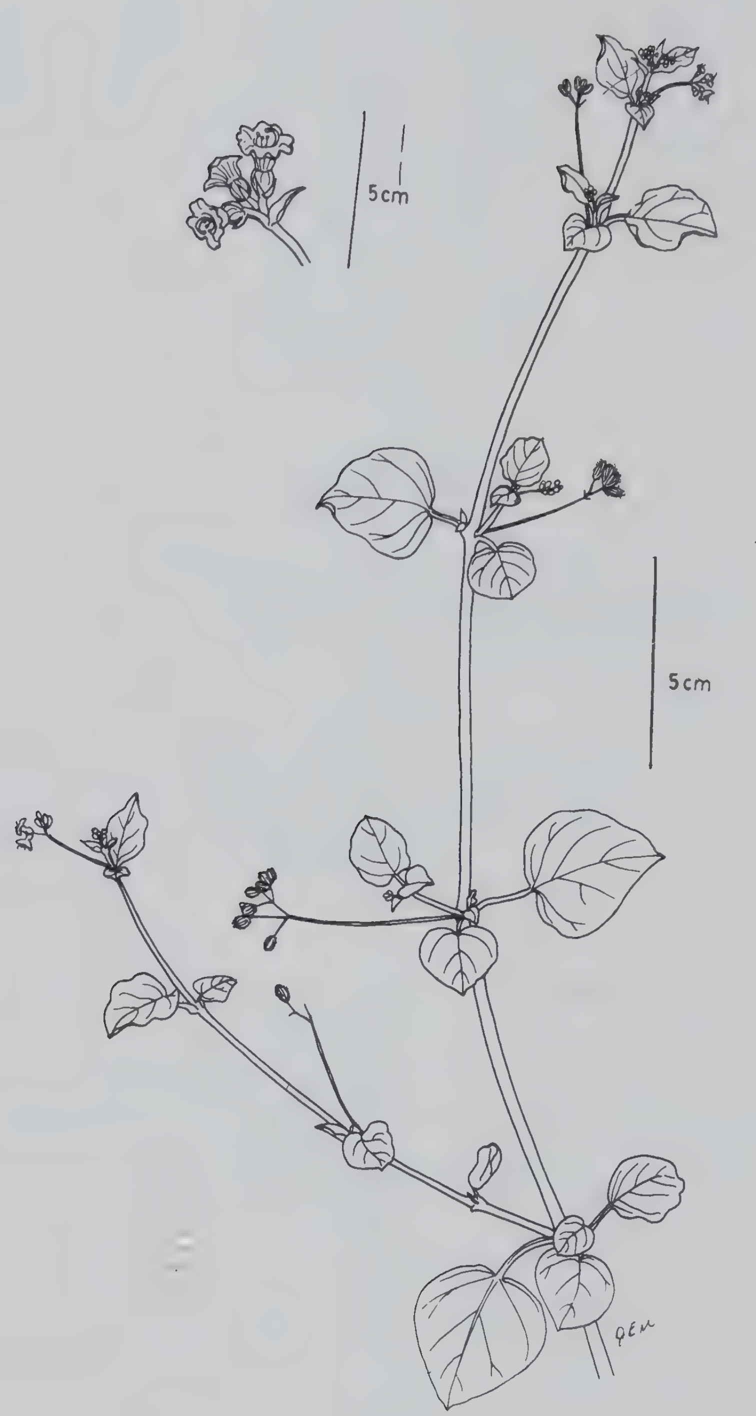
Characteristics	:	A strongly aromatic, glabrous herb, up to 1 m high. Leaves opposite, ovate-lanceolate, usually with entire margin. Flowers whitish-pink or purplish, arranged in whorls on simple or branched racemes. Seeds black.
Habitat	:	Moist sandy soil; probably introduced from gardens.
Fl. & Fr.	:	Throughout the year.
Reference	:	FBI. 4:608; FUGP. 2:235; FD. 286



SALVIA L.

Salvia plebeia R. Br.

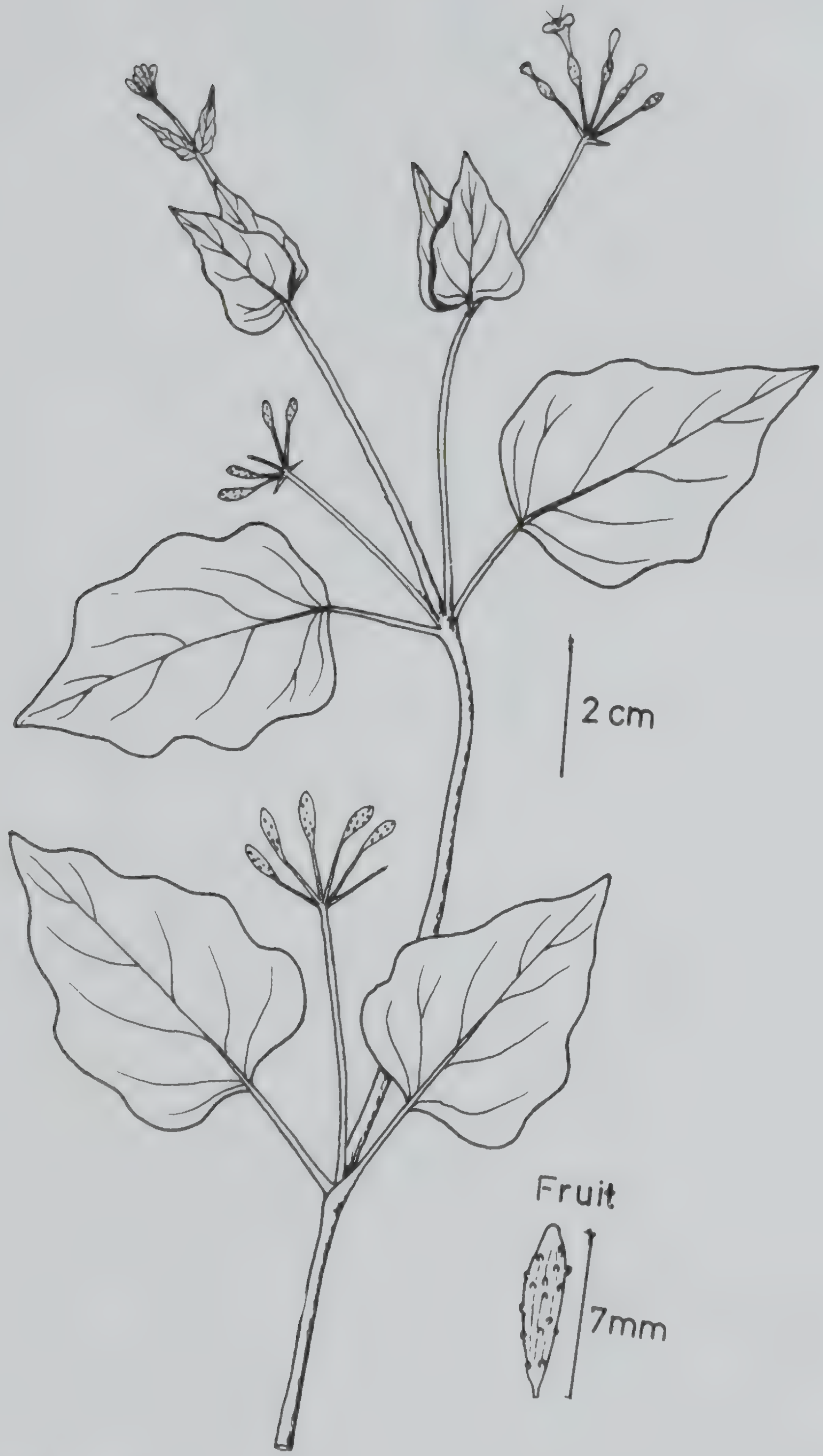
Characteristics :	An erect, annual herb with 4-angular, densely hairy stem. Leaves opposite, oblong-lanceolate; margin toothed. Flowers pinkish-blue or white, arranged in whorls on terminal panicled spikes with 4 to 6 flowers in each whorl; calyx 2-lipped, glandular hairy. Seeds minute, ovoid, rugose, brown.
Habitat :	Moist, shady areas throughout the uplands; common in late winter.
Fl. & Fr. :	January to May.
Reference :	FBI. 4:655; FUGP. 2:256; FD. 288; FTD. 288



58. NYCTAGINACEAE

BOERHAVIA L.
Boerhavia diffusa L.

Synonym	:	*B. procumbens* Roxb.
Characteristics	:	A prostrate or ascending, perennial herb with a stout tap root. Leaves opposite, in pairs of unequal sides, broadly ovate, cordate at base, wavy on margin. Flowers sessile, pinkish-white, arranged in axillary or terminal umbel-like, peduncled clusters. Fruits clavate, 5-ribbed, glandular along the ribs.
Habitat	:	Roadsides and scattered in sandy soil throughout the uplands.
Fl. & Fr.	:	Throughout the year.
Reference	:	FBI.4:709; FUGP.3:2; FD.292; FID.316; FNER.340; FTD.161



COMMICARPUS Standl.

Commicarpus chinensis (L.) Heimerl

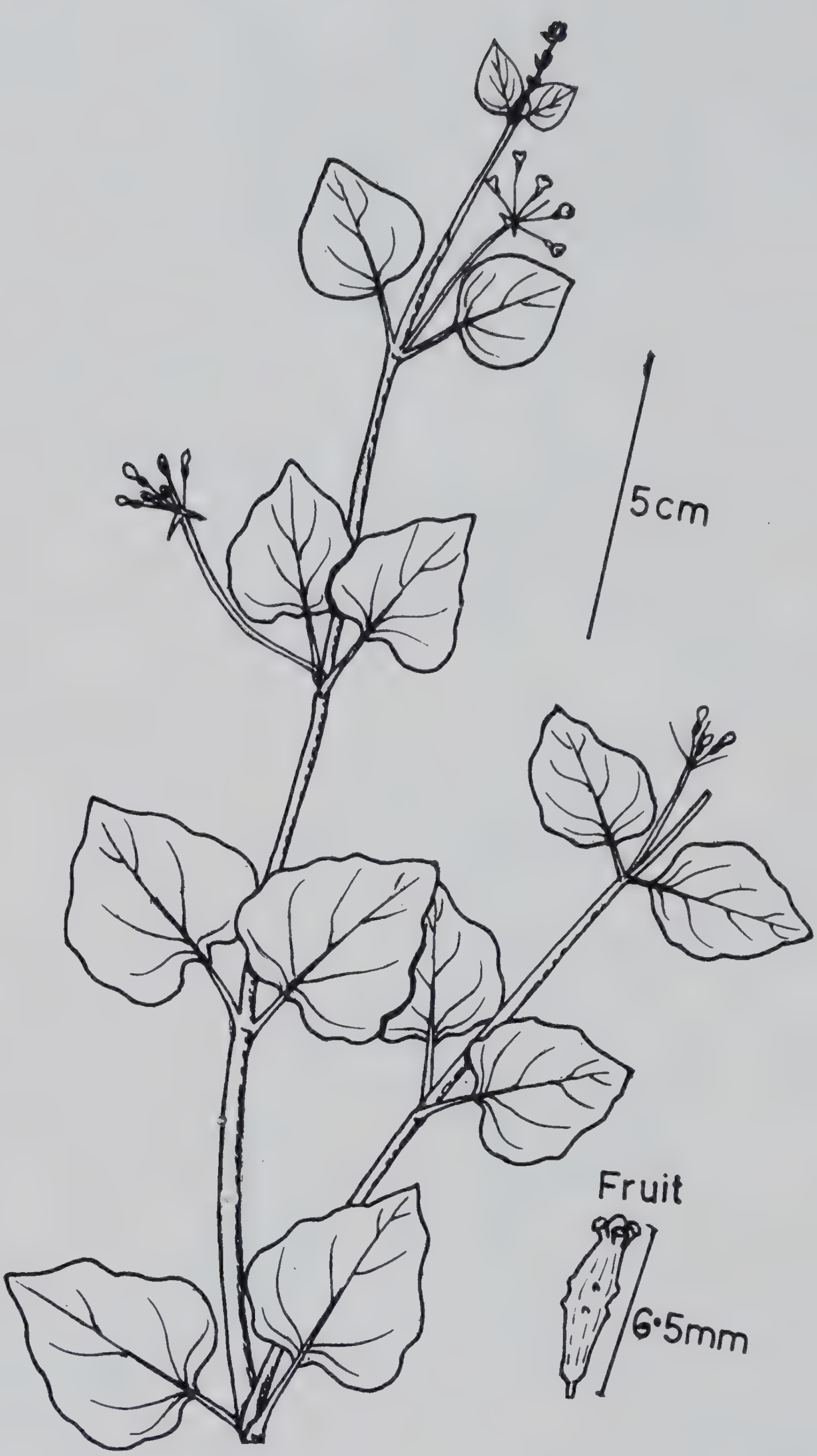
Synonym : *Boerhavia chinensis* (L.) Asch. & Schweinf.
B. repanda Willd.

Characteristics : A diffuse, straggling herb or undershrub with glabrous or slightly hairy stems. Leaves opposite, ovate, acuminate at apex, in pairs of nearly equal size; petioles long; margins wavy. Flowers pink, 3 to 8 in an umbel. Fruits club-shaped, obscurely ribbed, with glandular projections on ribs.

Habitat : Throughout the uplands and roadsides.

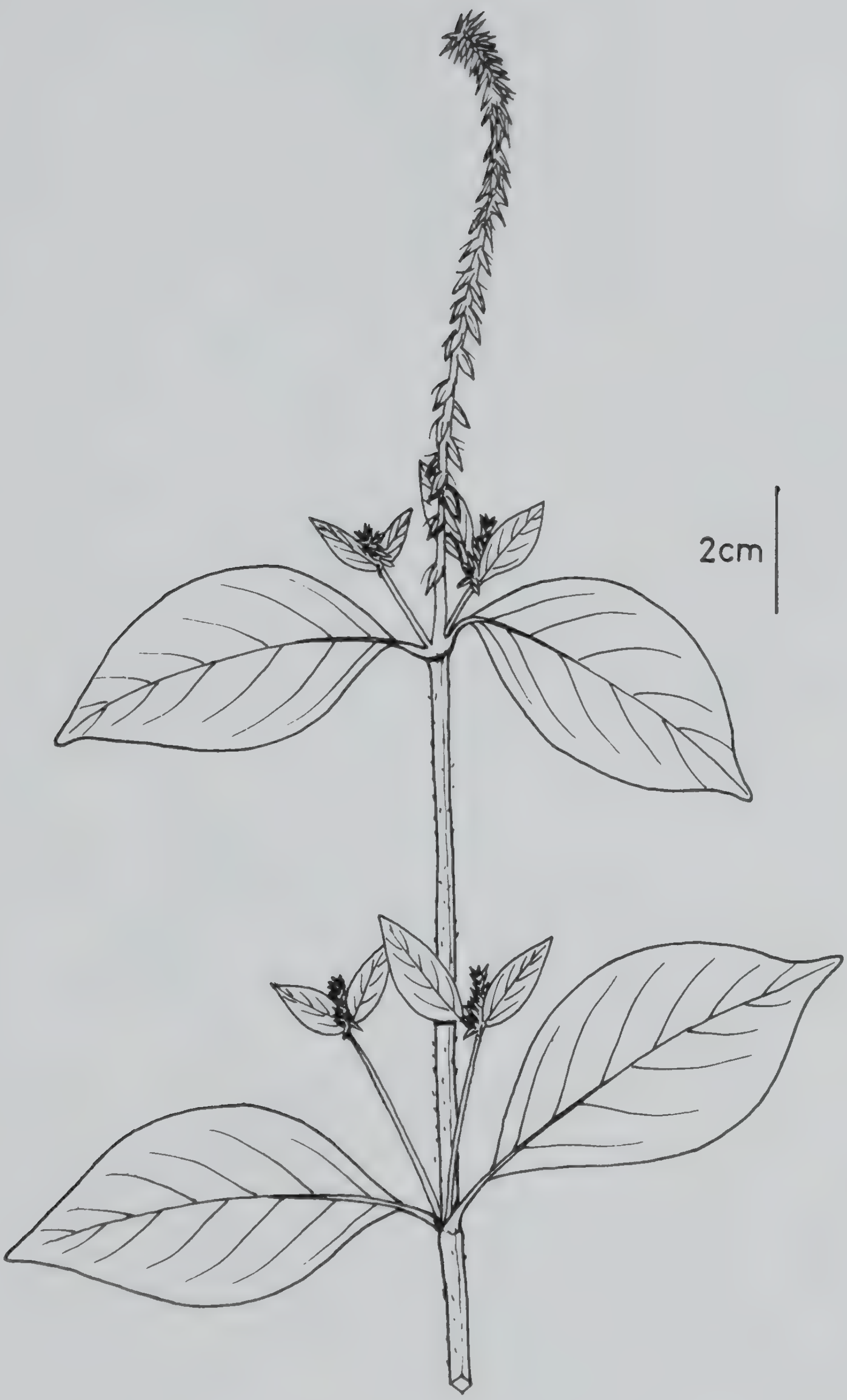
Fl. & Fr. : October to December.

Reference : FBI. 4:709; FUGP. 3:3; FHD. 92; FNER. 340; FTN. 1, 2:188



Commicarpus helenae (Schultes) Meikle

Synonym	:	*Boerhavia verticillata* auct. non Poir.
Characteristics	:	A decumbent or rambling undershrub with glabrous stem. Leaves opposite, broadly ovate or suborbicular, wavy on margin. Flowers pinkish-white, in whorls of 3 to 6. Fruits more than 5 mm long, clavate; with a ring of 4 to 5 large, globose glands around the crown.
Habitat	:	Along roadsides and scattered throughout the uplands.
Fl. & Fr.	:	August to February.
Reference	:	FBI. 4:710; Hooker's Ic. 37:t. 3694, P.1. 1971

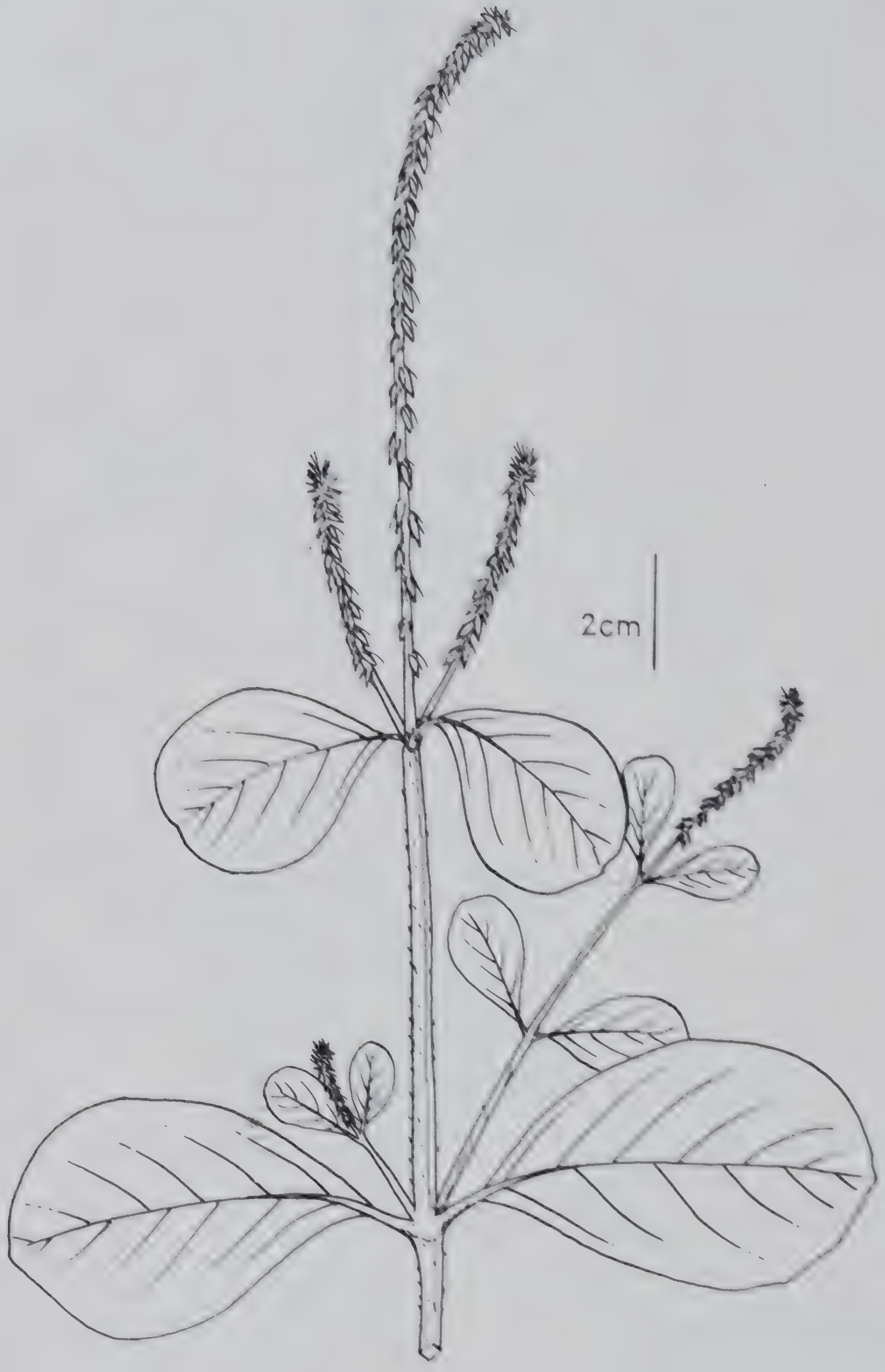


59. AMARANTHACEAE

ACHYRANTHES L.

Achyranthes aspera L. var. **argentea** Hook. f.

Local name	Onga
Characteristics	An erect or straggling herb or undershrub. Stem angular, ribbed, hairy. Leaves opposite, elliptic to ovate, pointed at tip, cuneate at base. Flowers greenish-white, arranged in long, terminal or axillary spike; perianth pointed, spine-like, hardens in fruit. Seeds reddish brown.
Habitat	Open, dry areas; scattered throughout the uplands and along the roadside.
Fl. & Fr.	Throughout the year.
Reference	FBI. 4:730; FNER. 345; FBR. 195



Achyranthes aspera L. var. **porphyristachya** Hook. f.

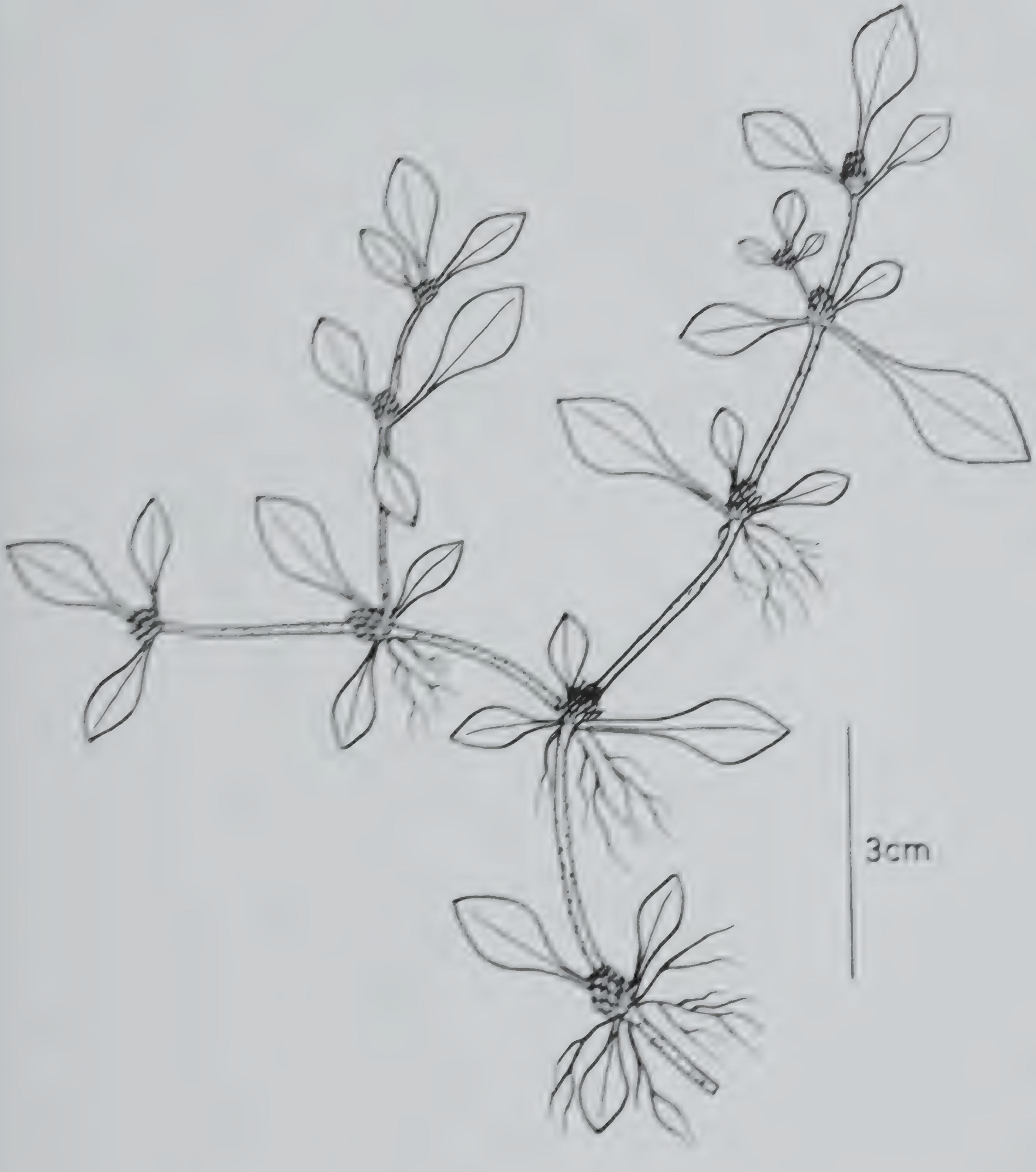
Local name : Onga

Characteristics : An erect or straggling herb or undershrub with angular, ribbed, hairy stems. Leaves opposite, broadly elliptic, rounded at apex, cuneate at base. Flowers greenish-white, arranged in long, terminal or axillary spike; perianth pointed, spine-like, hardens in fruit. Seeds reddish brown.

Habitat : Open dry areas; scattered throughout the uplands and along roadside.

Fl. & Fr. : Throughout the year.

Reference : FBI. 4:730; FD. 299; FNER. 345



ALTERNANTHERA Forsk.

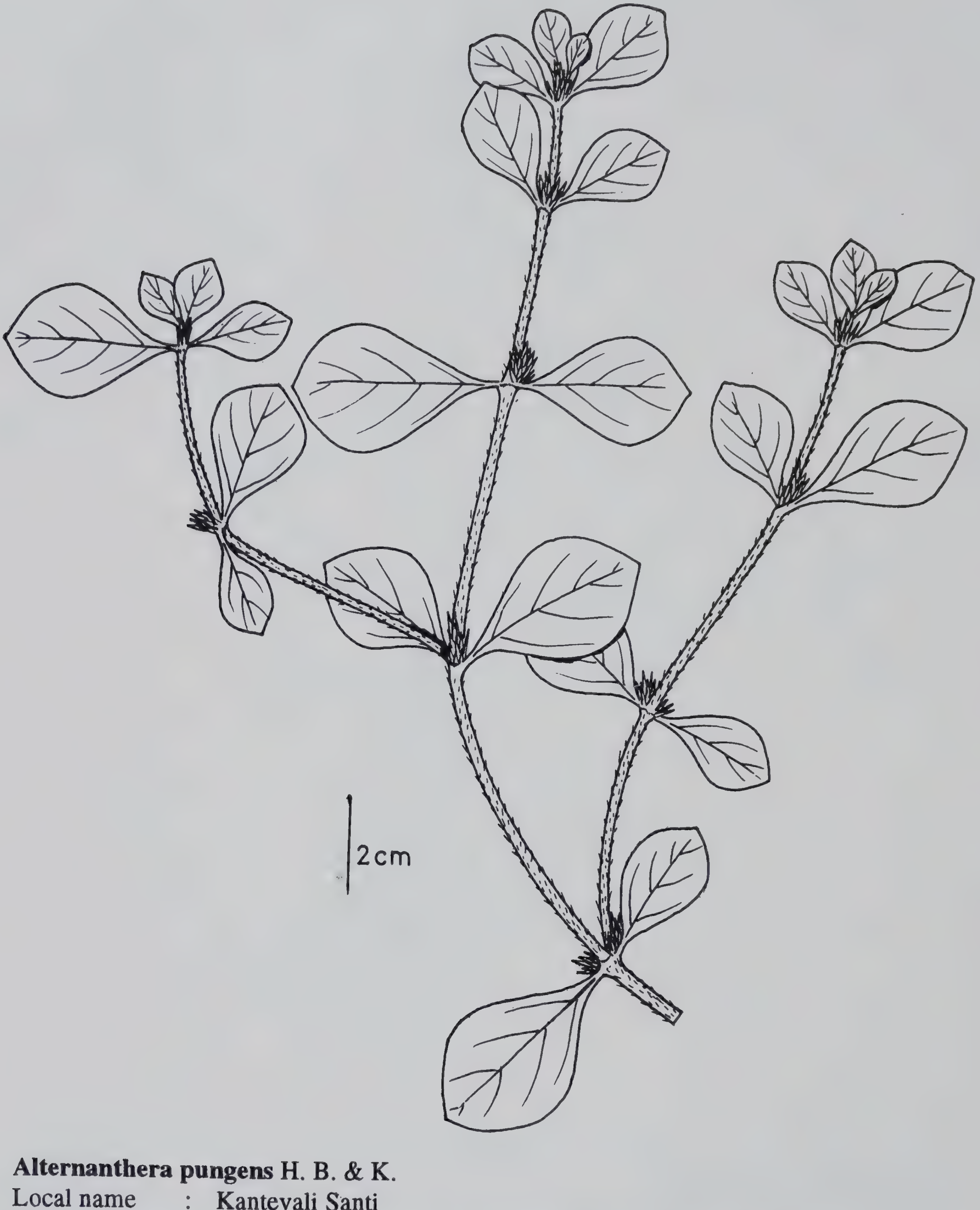
Alternanthera paronychioides St. Hil.

Characteristics : A prostrate, creeping, branched herb with dense white hairs. Leaves spathulate-elliptic, with distinct petiole. Flowers white, arranged in axillary spikes.

Habitat : Dry mud flats; not common.

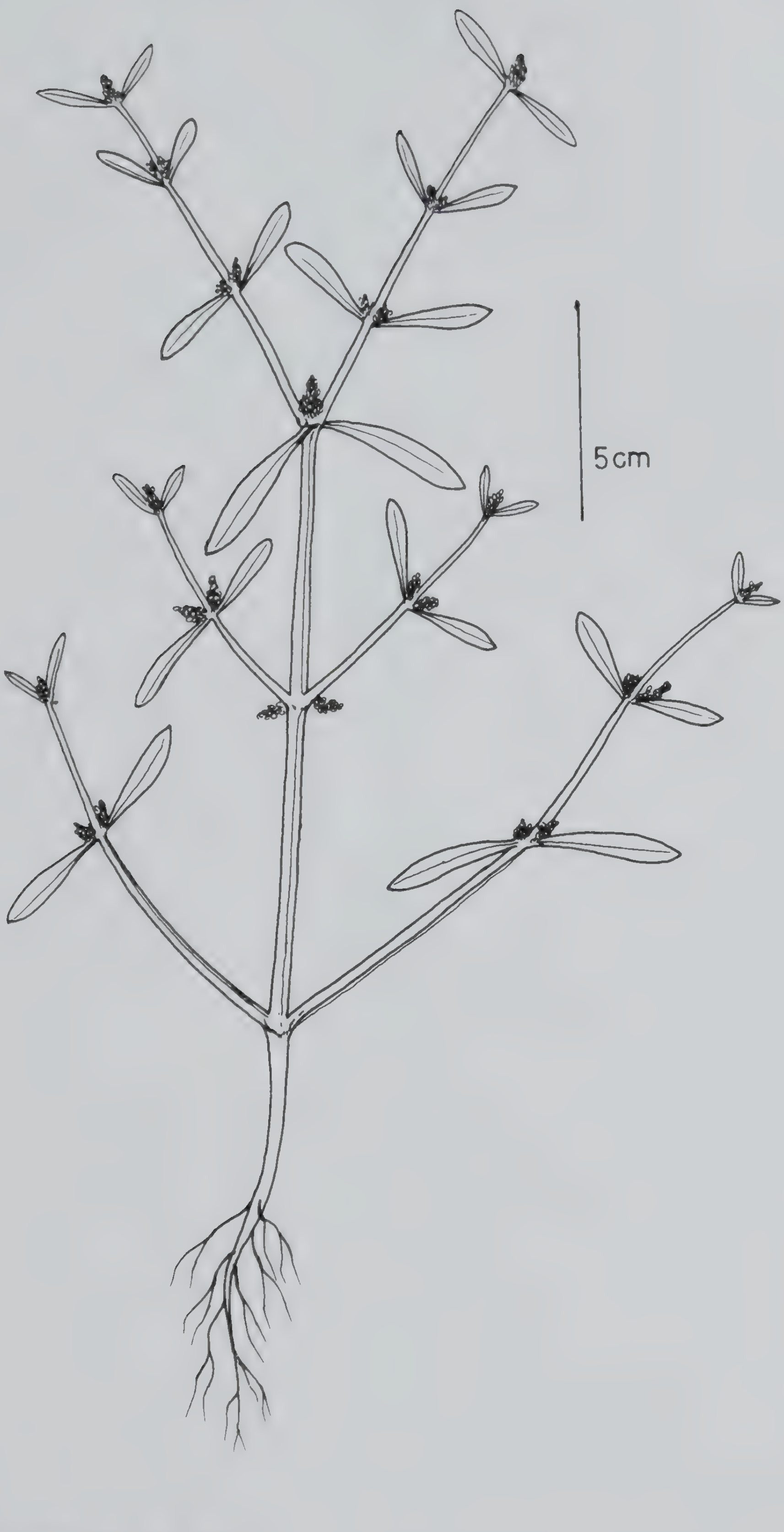
Fl. & Fr. : August to February.

Reference : FNER. 345; FHD. 105



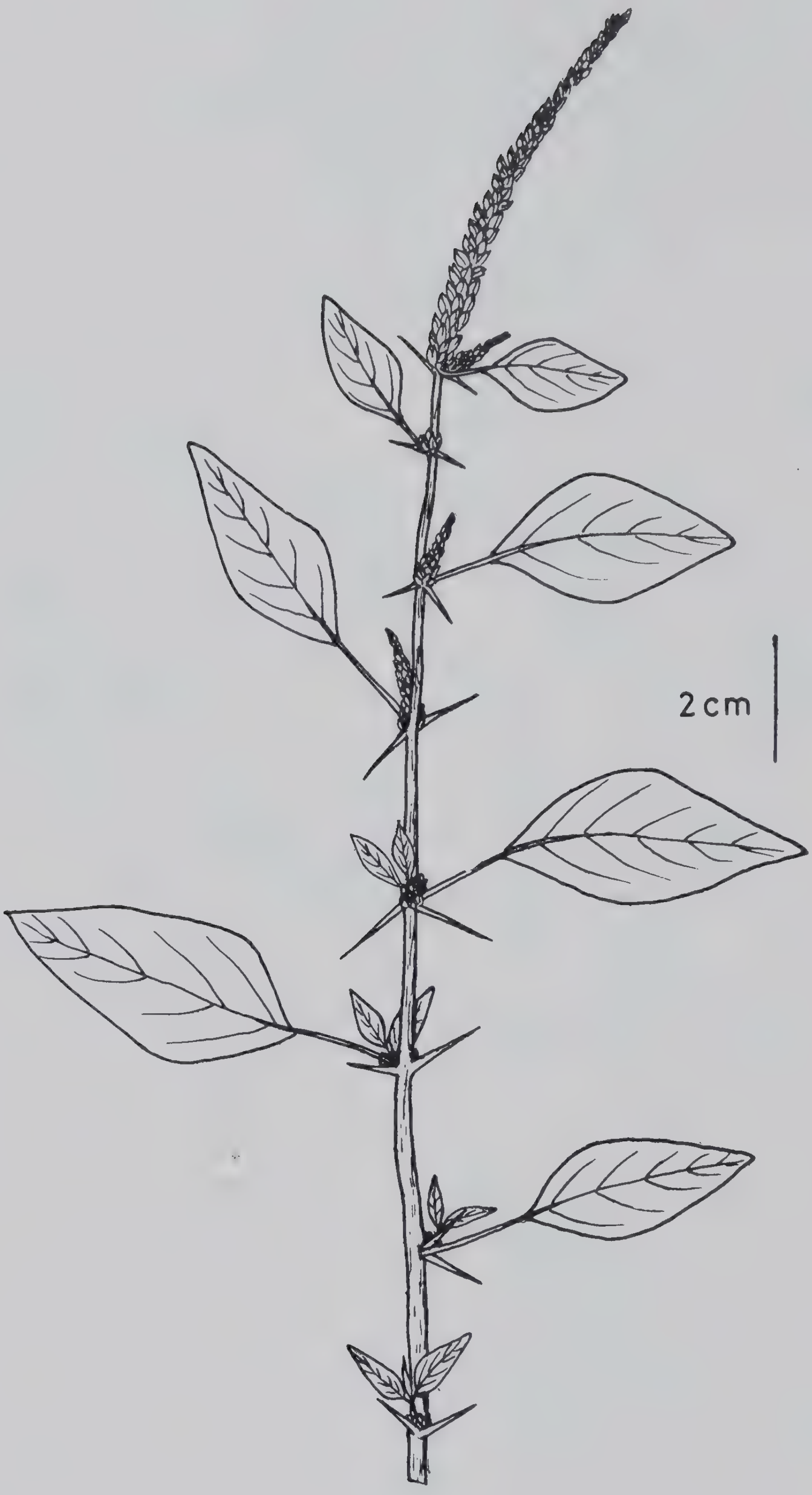
Alternanthera pungens H. B. & K.

Local name	:	Kantevali Santi
Characteristics	:	A prostrate, creeping, branched herb with hairy stem. Leaves suborbicular or nearly circular, rounded at apex, cuneate at base. Flowers white, arranged in axillary, globose spikes; tepals spiny.
Habitat	:	Open dry areas along roadside and throughout the uplands.
Fl. & Fr.	:	September to December.
Reference	:	FD. 298; FBR. 196



Alternanthera sessilis (L.) R. Br.

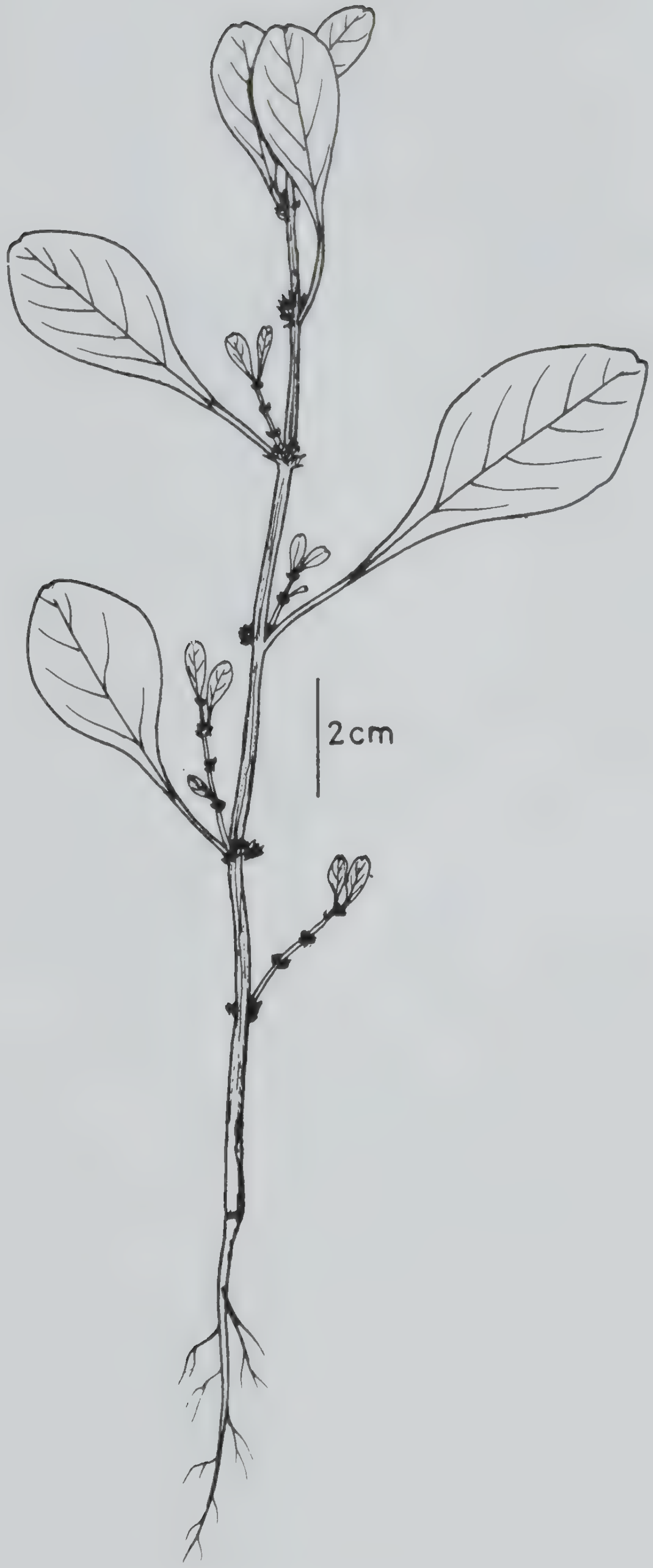
Characteristics	:	A prostrate or decumbent, spreading herb, rooting at lower nodes. Leaves elliptic or linear-lanceolate. Flowers white, arranged in axillary spike. Seeds yellowish or reddish brown.
Habitat	:	Roadsides, margins of aquatic area and moist areas throughout the uplands.
Fl. & Fr.	:	August to May.
Reference	:	FD. 299; FNER. 346; FTD. 163



AMARANTHUS L.

Amaranthus spinosus L.

Characteristics	:	An erect, glabrous herb with axillary spines. Leaves up to 10 cm long, ovate or lanceolate. Flowers green, unisexual, arranged in axillary clusters or in axillary or terminal spikes. Fruit an utricle, opening around the apex. Seeds black or dark brown, shiny.
Habitat	:	Open dry areas.
Fl. & Fr.	:	July to December.
Reference	:	FBI. 4:718; FD. 296; FID. 324; FTD. 164



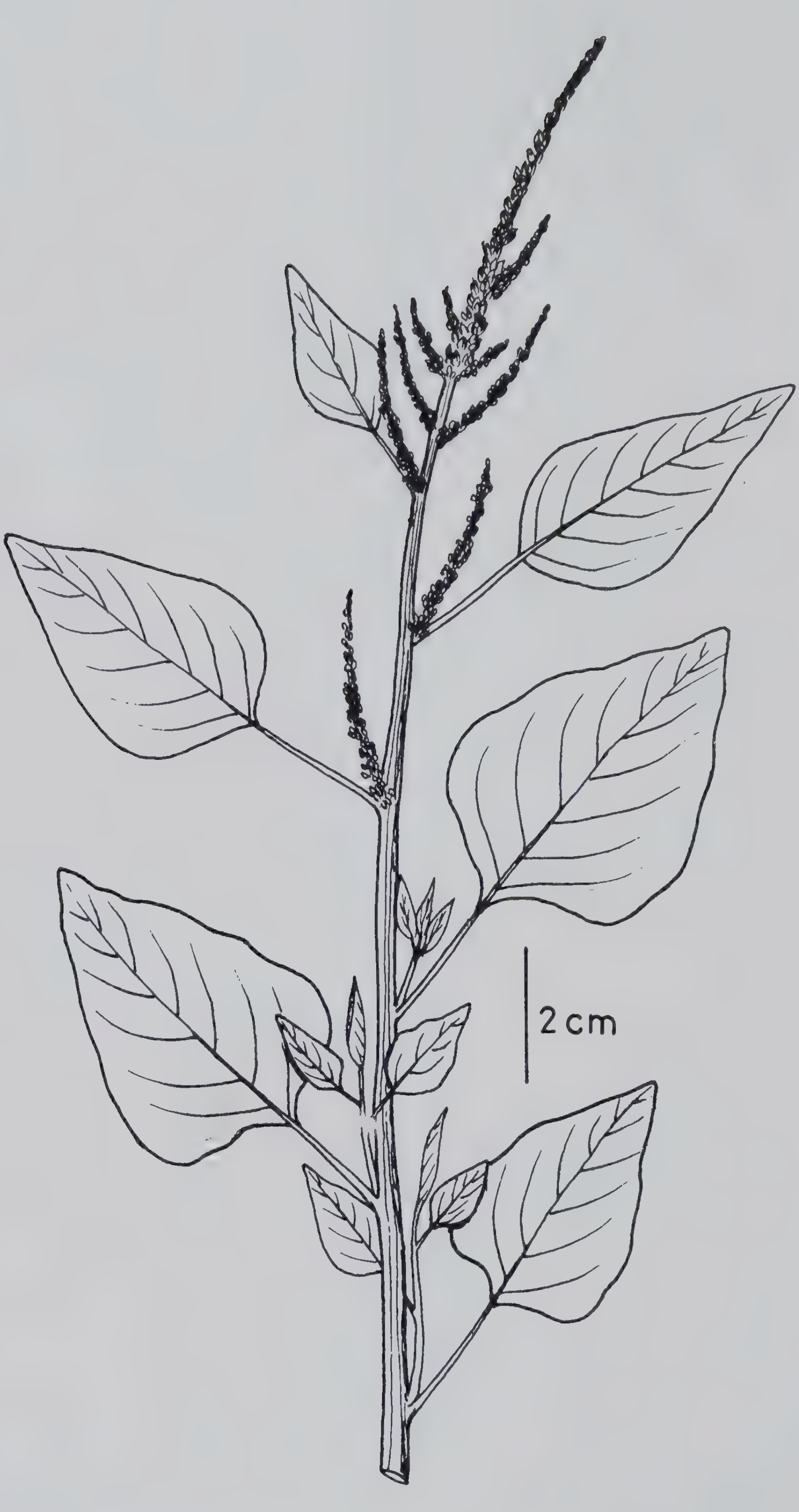
Amaranthus tricolor L.

Characteristics : An erect, branched herb with grooved and striate stem. Leaves variable in shape, cuneate at base; petiole long. Flowers greenish-yellow, unisexual, arranged in axillary clusters or terminal spikes; male and female flowers intermixed. Fruit an utricle, opening around the apex. Seeds brown or black, shiny.

Habitat : Open dry areas; scattered throughout the uplands.

Fl. & Fr. : December to April.

Reference : FD. 297; FNER. 349; FBR. 198



Amaranthus viridis L.

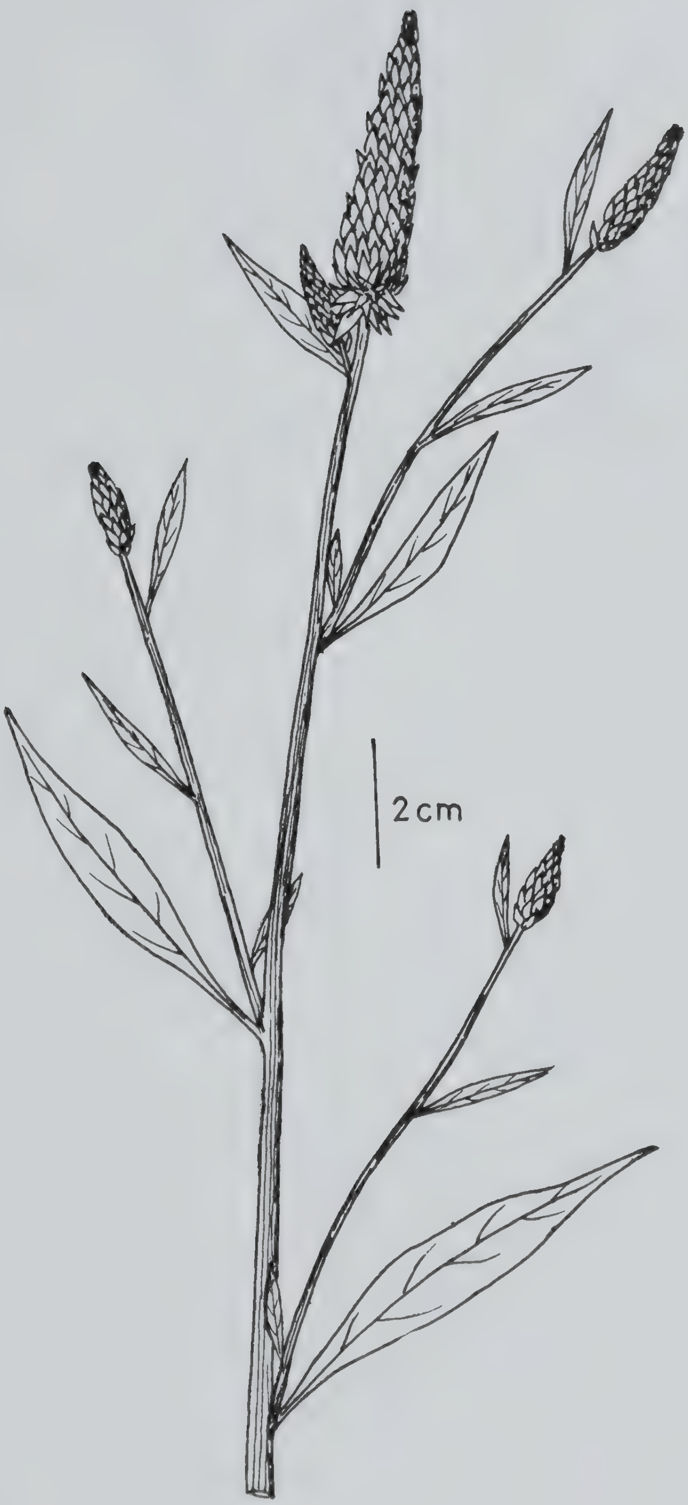
Local name : Lásua

Characteristics : An erect, branched, glabrous herb. Leaves ovate or rhomboid, cuneate at base. Flowers green, unisexual, arranged in axillary clusters or in terminal spikes. Fruit an utricle with brown or black, shiny seed.

Habitat : Scattered in moist, open areas and along roadsides.

Fl. & Fr. : August to March.

Reference : FBI. 4:720; FID. 324; FBR. 199



CELOSIA L.

Celosia argentea L.

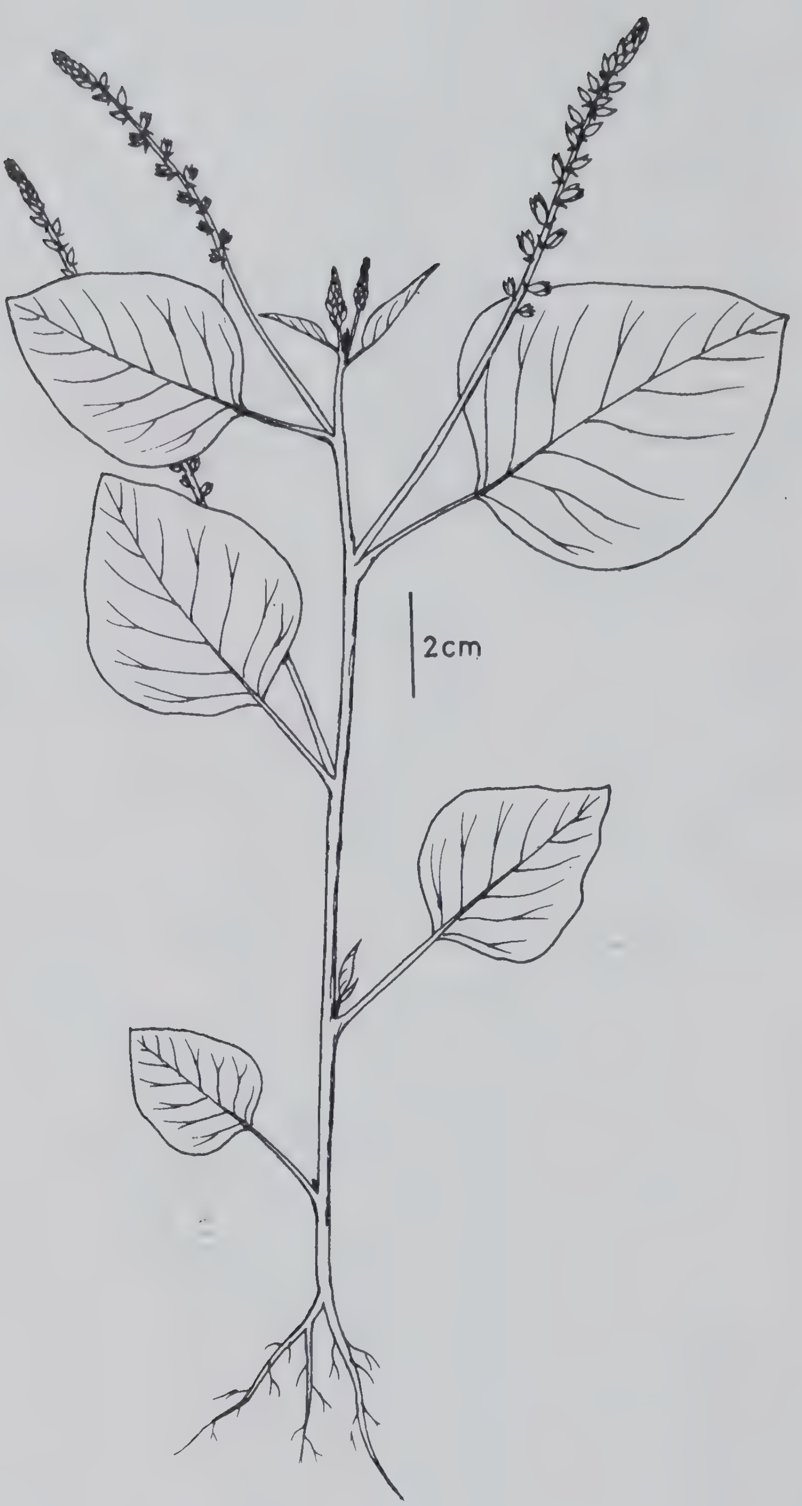
Local name : Chamkili

Characteristics : An erect, glabrous herb with ribbed stem. Leaves up to 13 cm long, linear-lanceolate. Flowers pinkish-white, shiny, arranged in dense cylindrical spikes. Fruit an utricle, opening around the apex by a transverse split. Seeds dark, reddish-brown.

Habitat : Moist, open areas throughout the uplands.

Fl. & Fr. : August to December.

Reference : FBI. 4:714; FID. 325; FTD. 165; FBR. 199



DIGERA Forsk.

Digera muricata (L.) Mart.

Synonym : *D. arvensis* Forst.

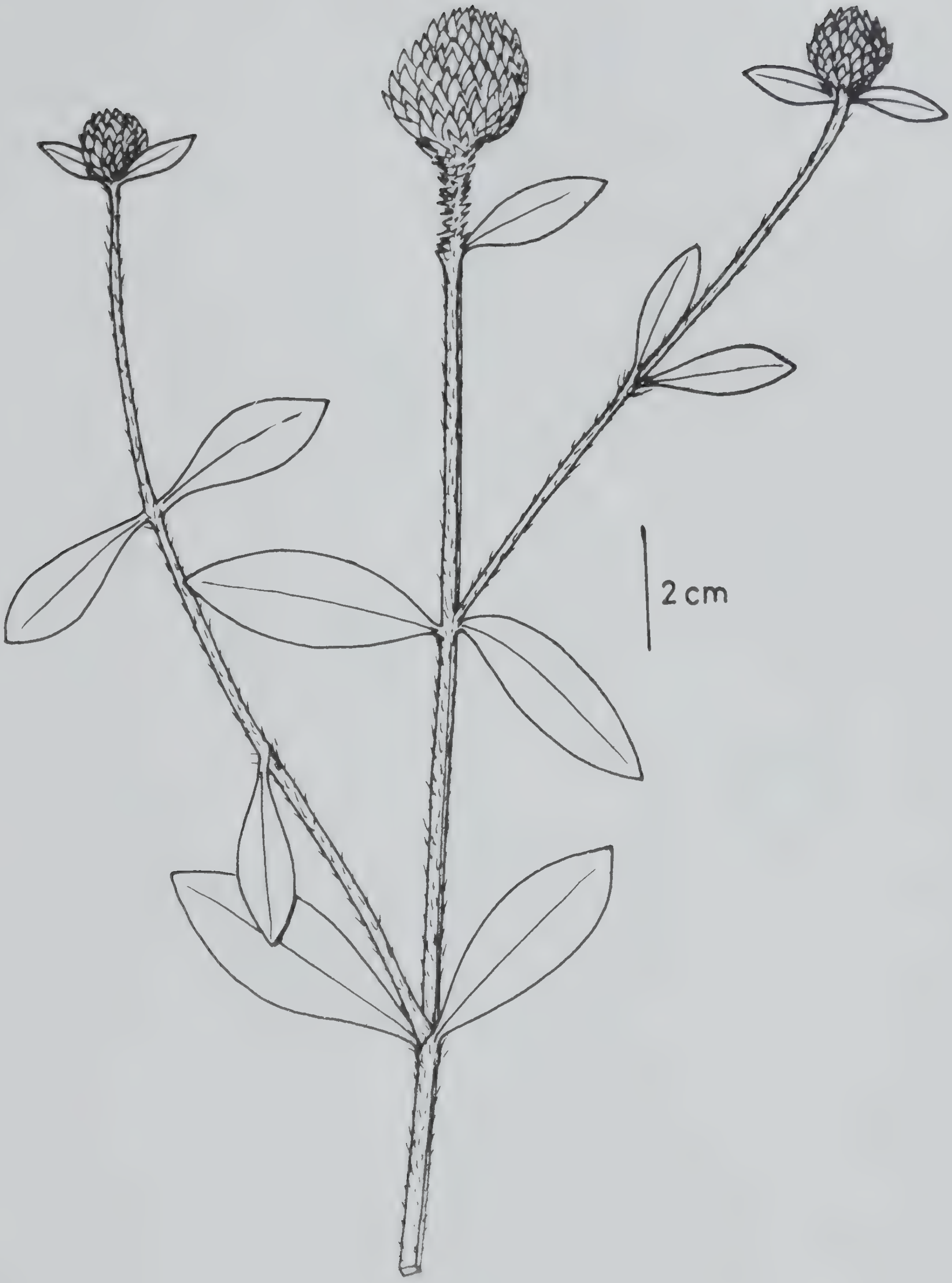
Local name : Lásua

Characteristics : An erect, branched herb with glabrous stems. Leaves up to 7 cm long, ovate or ovate-oblong; margin slightly wavy or entire. Flowers pinkish-white, arranged in axillary racemes. Fruits muriculate, with persistent style base. Seeds yellowish-brown.

Habitat : Moist, open areas throughout the uplands.

Fl. & Fr. : July to December.

Reference : FBI. 4:717; FUGP. 3:8; FID. 326; FTD. 166



GOMPHRENA L.

Gomphrena serrata L.

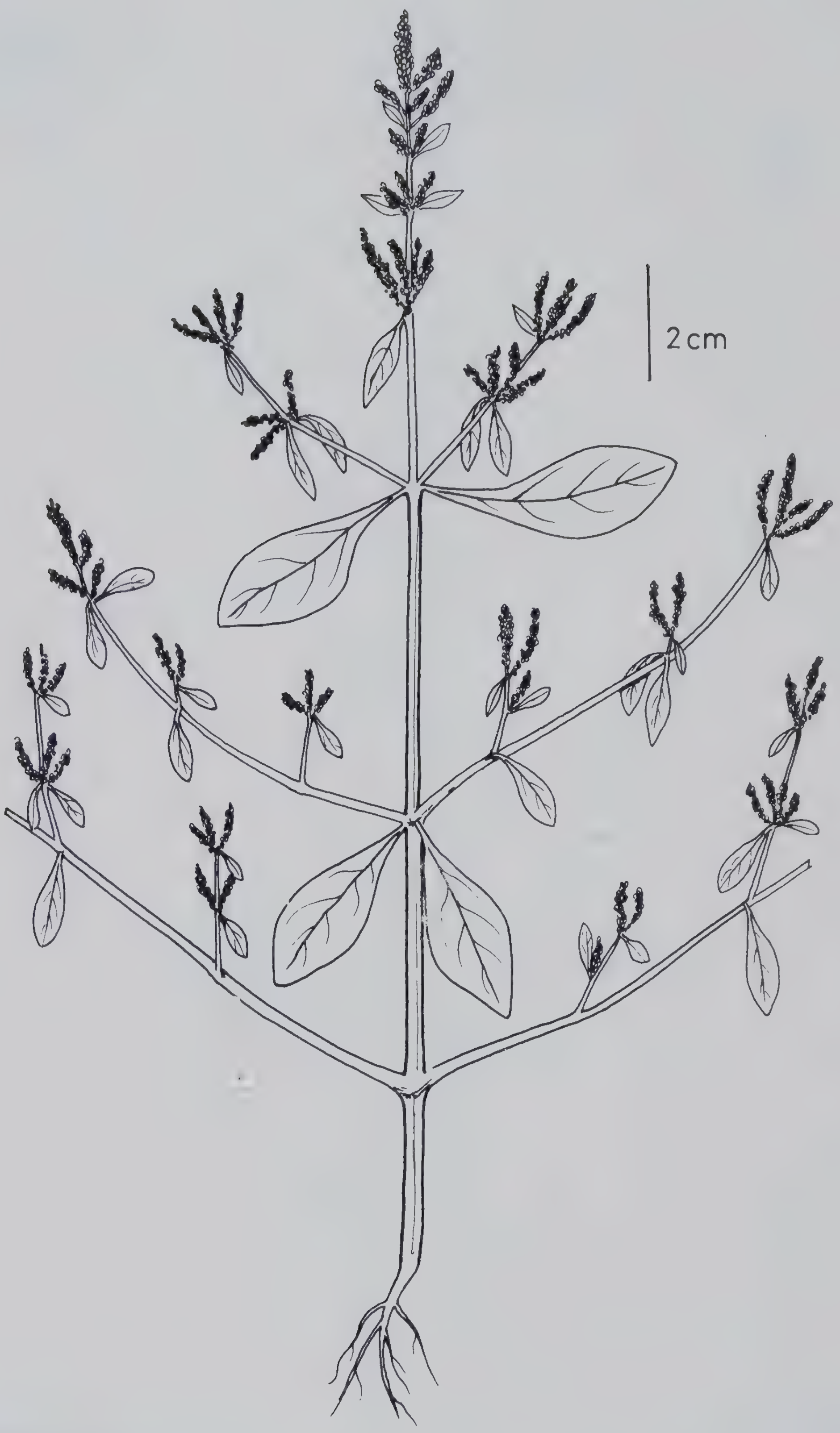
Synonym : *G. celosioides* Mart

Characteristics : A procumbent or prostrate herb with a stout tap root. Stem with white, shaggy hairs. Leaves up to 5 cm long, oblong-lanceolate or spathulate, mucronate at apex, cuneate at base. Flowers white, arranged in dense, terminal spike. Fruit an achene, enclosed by a hardened perianth.

Habitat : Open areas throughout the uplands.

Fl. & Fr. : September to April.

Reference : FD. 298; FNER. 352; FTD. 166; FBR. 200; FTN. 1, 2:192



NOTHOSAERVA Wt.

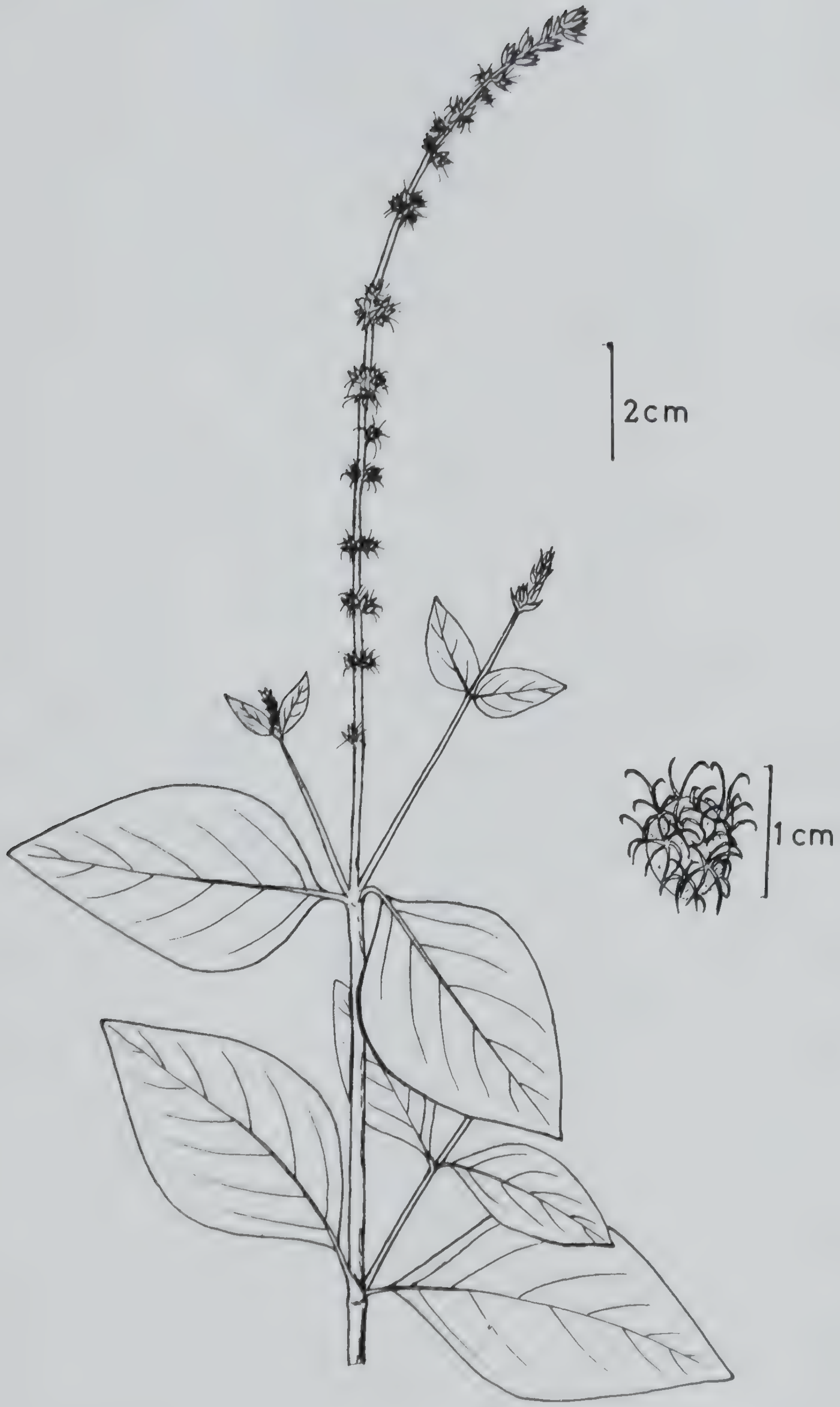
Nothosaerva brachiata (L.) Wt.

Characteristics : An erect, branched, glabrous herb. Leaves up to 5 cm long, elliptic or ovate, glabrous or sparsely hairy. Flowers white, arranged in axillary spikes. Fruit an utricle, enclosed by perianth. Seeds small, lenticular, brownish-black, shiny.

Habitat : Dried monsoonal pools and moist shady areas.

Fl. & Fr. : October to February.

Reference : FBI. 4:726; FD. 299; FID. 326; FBR. 200



PUPALIA Juss.

Pupalia lappacea (L.) Juss.

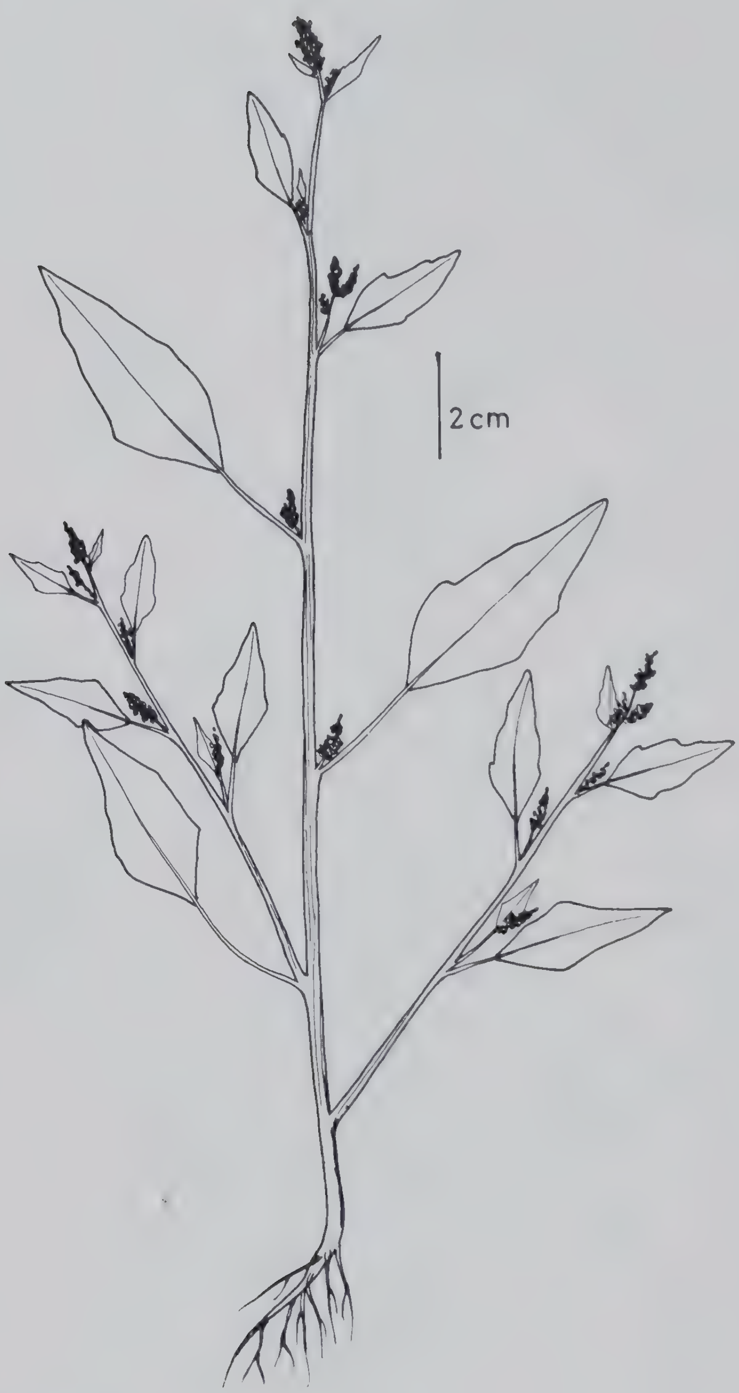
Local name : Chirchita

Characteristics : An erect or straggling, perennial herb or undershrub. Leaves ovate-oblong or elliptic-lanceolate, softly hairy. Flowers pale green, arranged on a long spike; imperfect flowers reduced to awns with hooked bristles. Fruit an utricle with shiny, dark brown seed.

Habitat : Common in dry soil along with other undershrubs.

Fl. & Fr. : August to January.

Reference : FBI. 4:724; FD. 300; FID. 327; FBR. 201

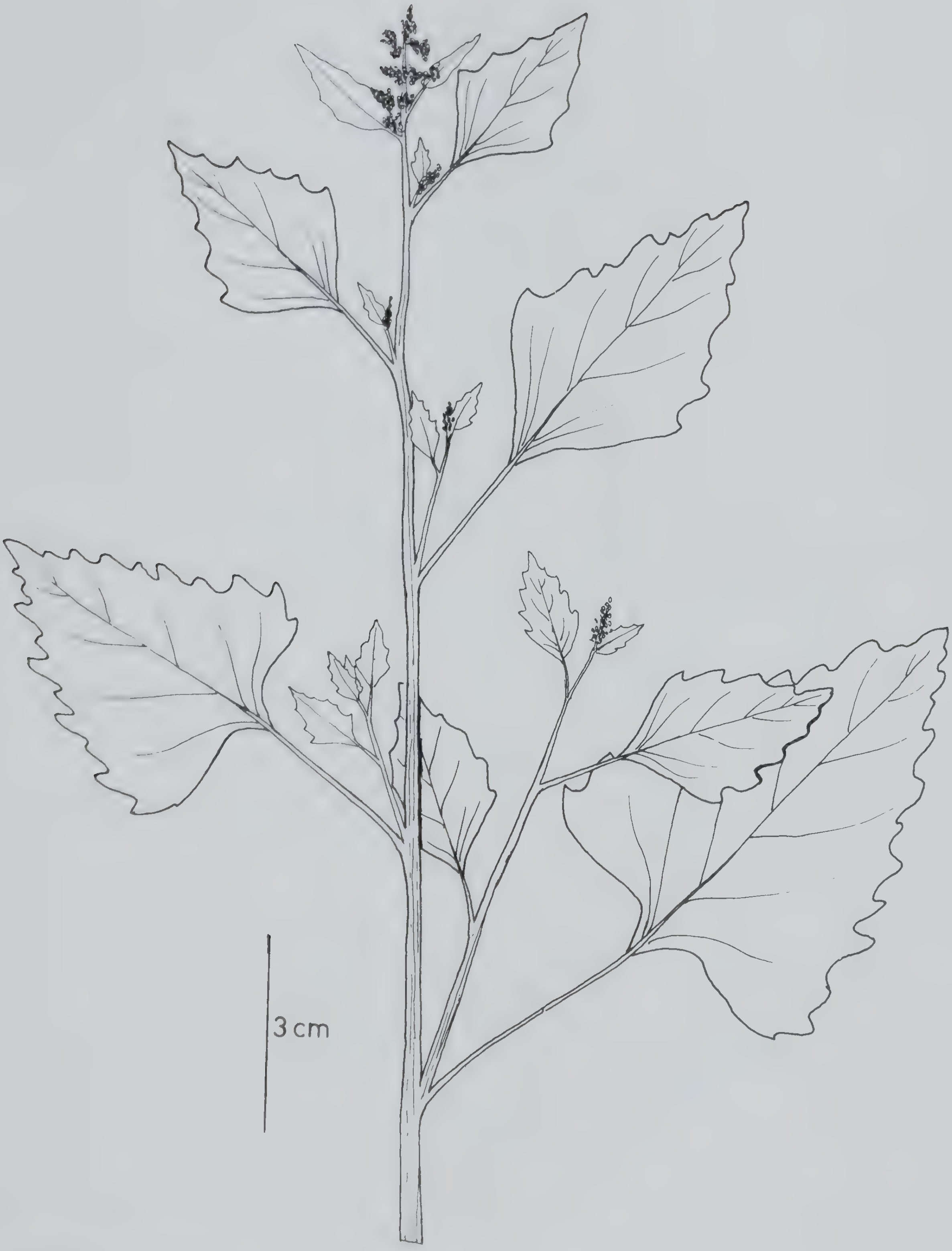


60. CHENOPODIACEAE

CHENOPODIUM L.

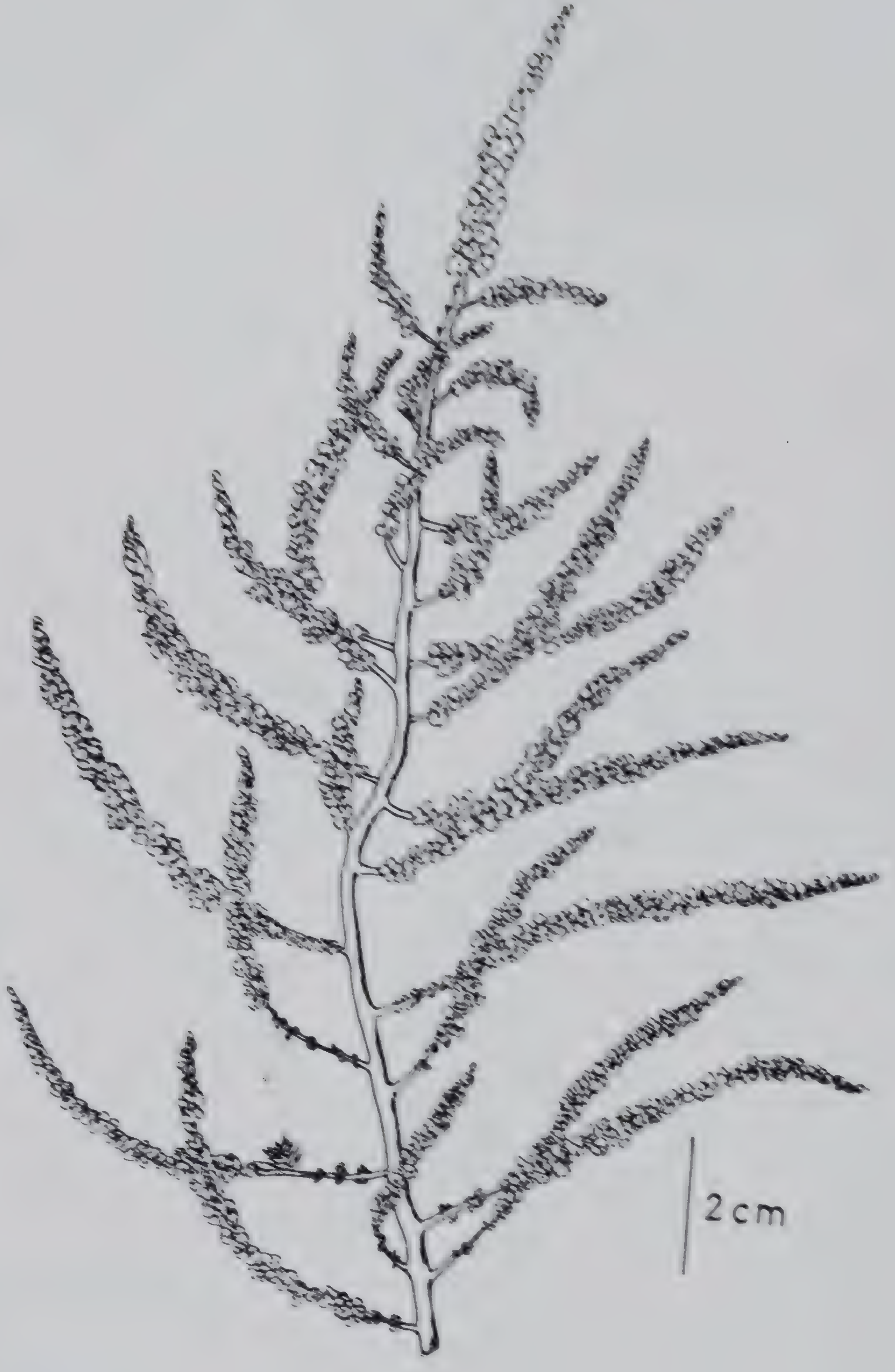
Chenopodium album L.

Local name	:	Bathua
Characteristics	:	An erect, branched herb with ribbed stem and white mealy pubescence. Leaves highly variable in shape, usually ovate-rhomboid or deltoid-ovate; margin toothed or lobed. Flowers greenish, arranged in panicled clusters; stamens slightly exerted; styles 2. Fruit an utricle, enclosed by perianth lobes. Seeds smooth, black, shiny.
Habitat	:	Moist soil along roadside and other open areas; common in late winter.
Fl. & Fr.	:	December to March.
Reference	:	FBI. 5:3; FD. 302; FID. 328; FNER. 354



Chenopodium murale L.

Local name	: Kharthua
Characteristics	: An erect or ascending herb with angular stem. Leaves shiny, ovate-rhomboid or deltoid-ovate, sharply toothed at margin; petioles long. Flowers greenish, in axillary or terminal panicles. Fruit a globose utricle, partially enclosed by perianth. Seeds dull black, rugose.
Habitat	: Moist soil along roadside and shady areas; common during winter season.
Fl. & Fr.	: January to March.
Reference	: FBI. 5:4; FD. 302; FID. 328; FNER. 356



SALSOLA L.

Salsola baryosma (Roem. & Schult.) Dandy

Synonym : *S. foetida* Del.

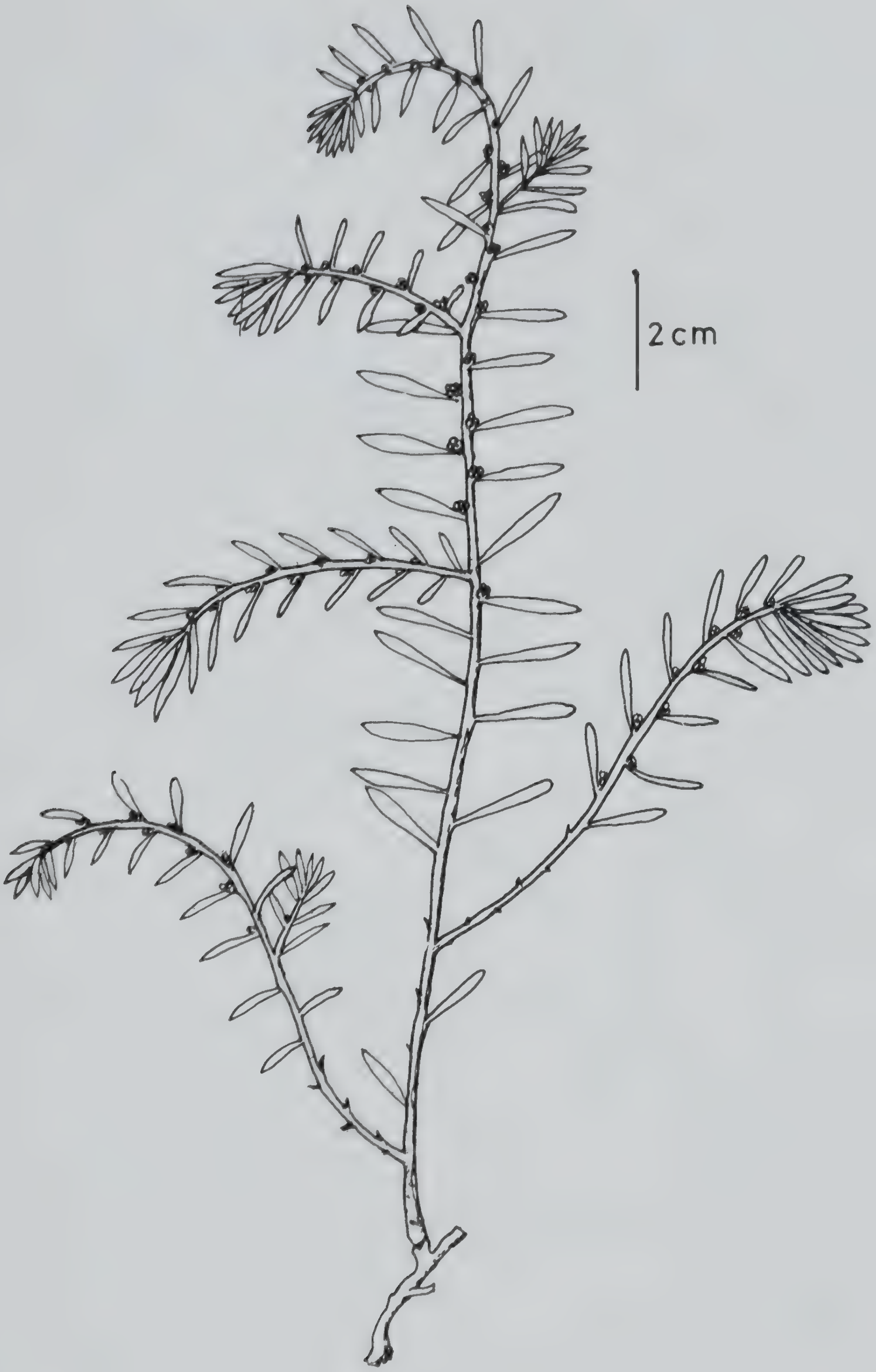
Local name : Chir-chitti

Characteristics : A much branched, hoary undershrub with crowded branches. Leaves minute, fleshy, broadly ovate to subglobose. Flowers in short cylindrical spikes; perianth winged, silvery white; stigmas 2, exerted.

Habitat : Saline sandy soil; not common.

Fl. & Fr. : November to March.

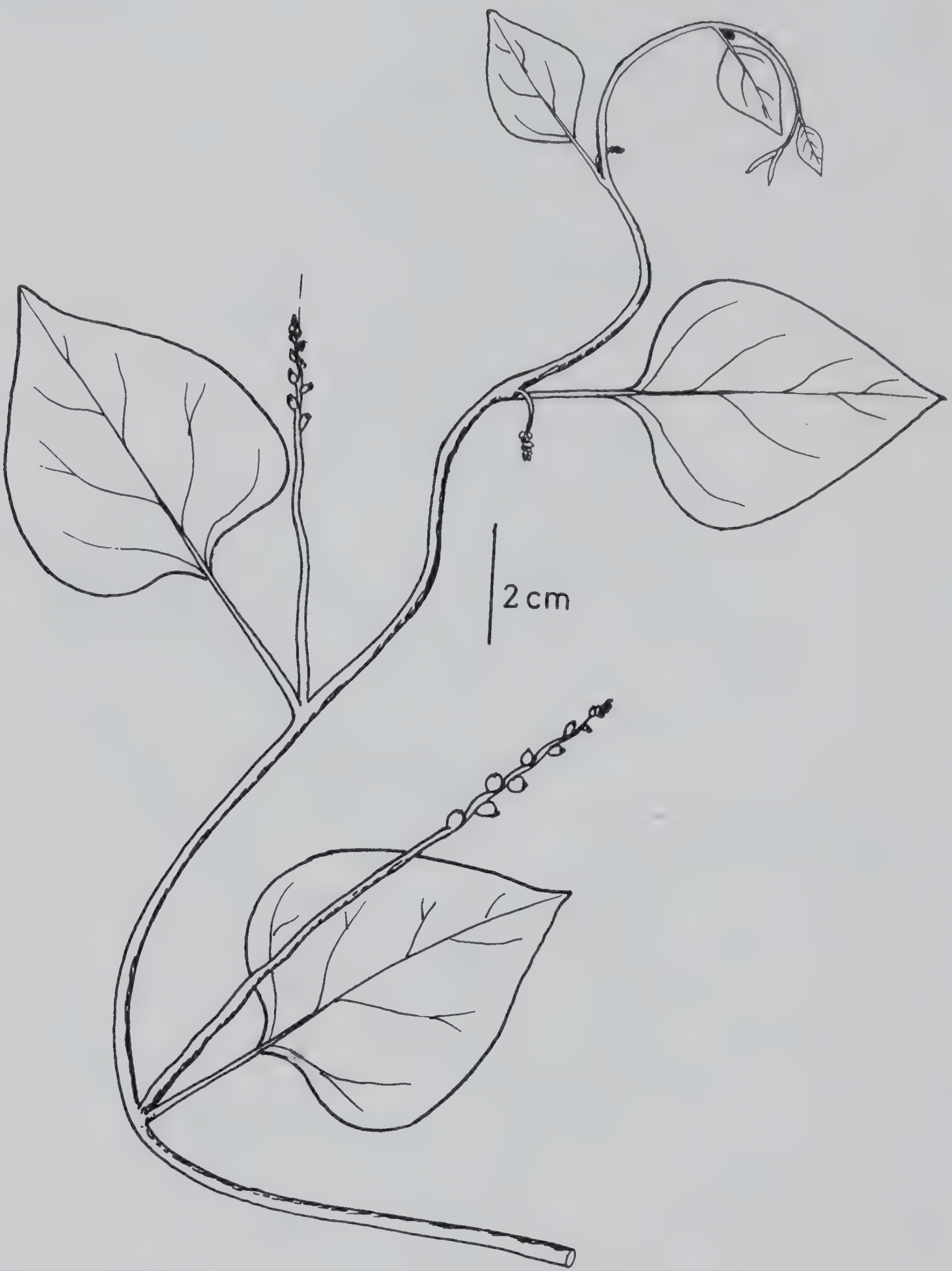
Reference : FBI. 5:18; FD. 302; FID. 330; FNER. 356



SUAEDA Forsk.

Suaeda fruticosa (L.) Forsk.

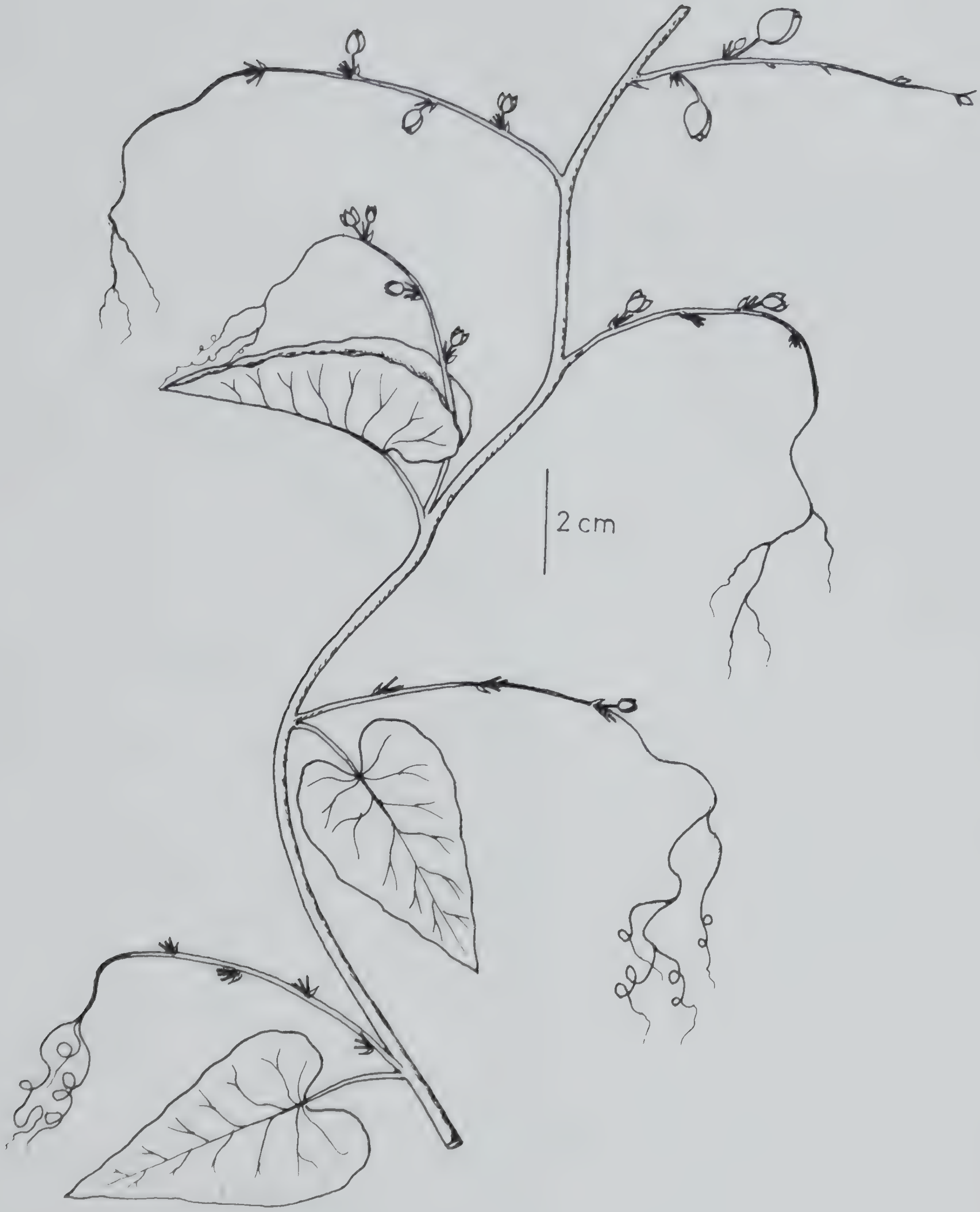
Characteristics :	A much branched, perennial undershrub with ascending branches. Leaves fleshy, linear-oblong or ellipsoid. Flowers greenish, solitary or 5 to 7 together in leaf axils; stamens 5; stigmas 3. Fruit an ovoid utricle with black, smooth shiny seeds.
Habitat :	Common in saline soil; usually near aquatic area.
Fl. & Fr. :	February to May.
Reference :	FBI. 5:13; FD. 303; FID. 331



61. BASELLACEAE

BASELLA L.
Basella alba L.

Synonym : *B. rubra* L.
Characteristics : A much branched, twining shrub with fleshy stem. Leaves broadly ovate, cordate at base, acute at tip. Flowers pink, sessile, loosely arranged on axillary spikes. Fruit globose, enclosed by persistent perianth.
Habitat : Found climbing on small trees and shrubs along the margin of aquatic area; common after rainy season.
Fl. & Fr. : August to February.
Reference : FBI. 5:20; FUGP. 3:27; FD. 304; FNER. 357

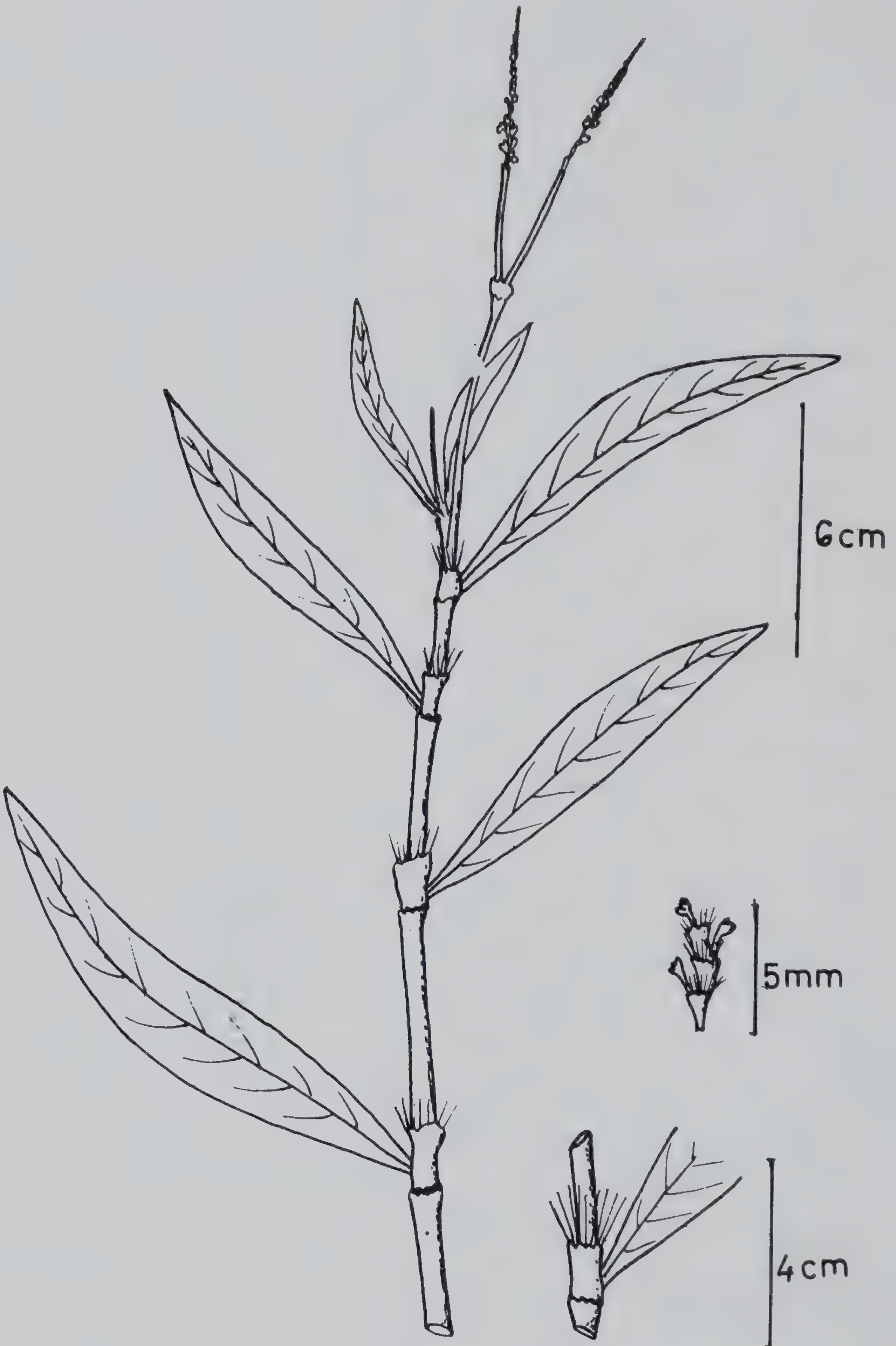


62. POLYGONACEAE

ANTIGONON Endl.

Antigonon leptopus Hook. & Arn.

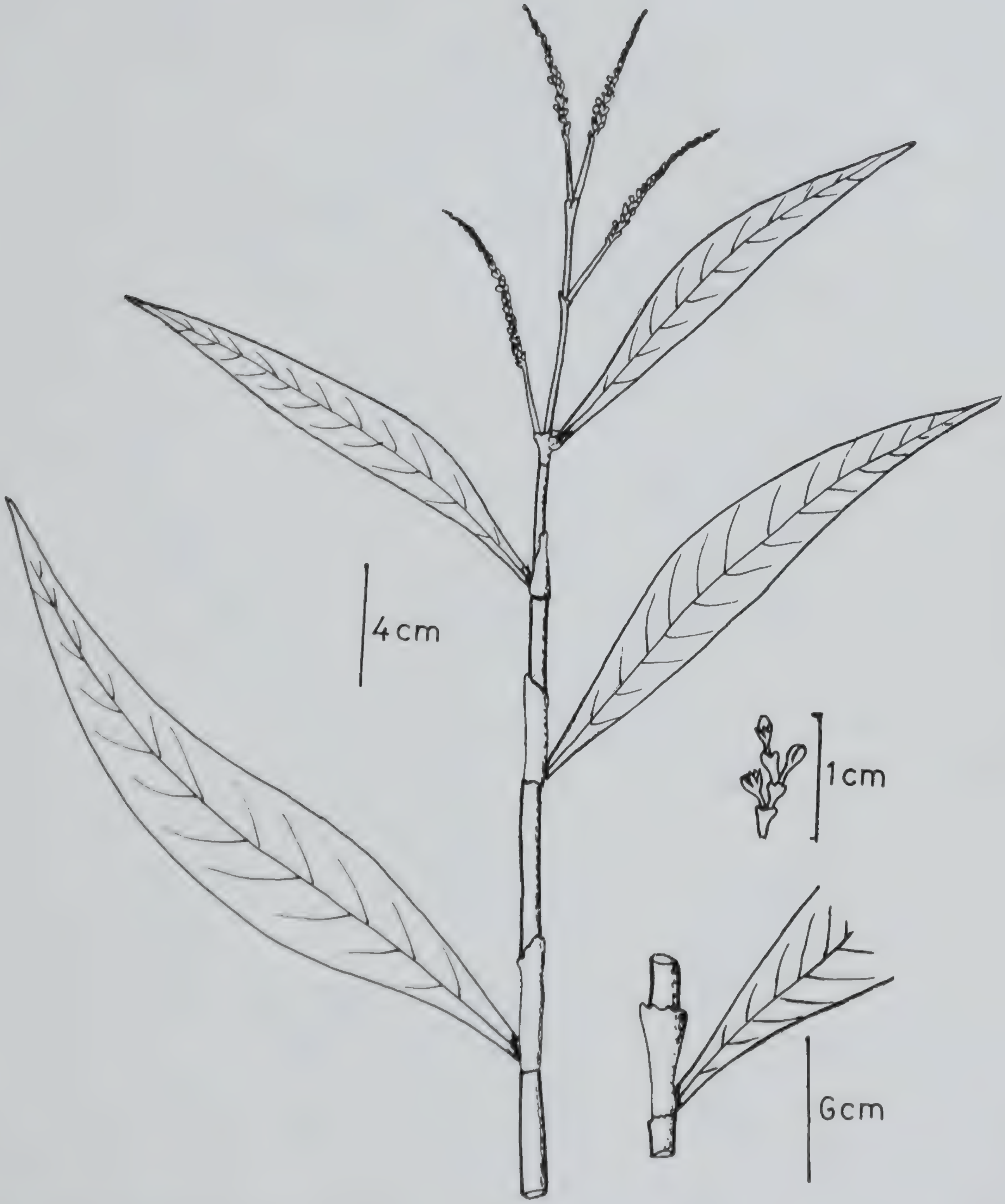
Characteristics :	A large perennial climber, woody at the base. Leaves ovate or ovate-triangular. Flowers bright rosy-pink, in axillary racemes; rachis of the infloresence ending in tendrils.
Habitat :	Probably planted as an ornamental; can be seen near the main entrance to the Park.
Fl. & Fr. :	Throughout the year.
Reference :	BP. 2:665; BBO. 2:821; FD. 307; FG. 602



POLYGONUM L.

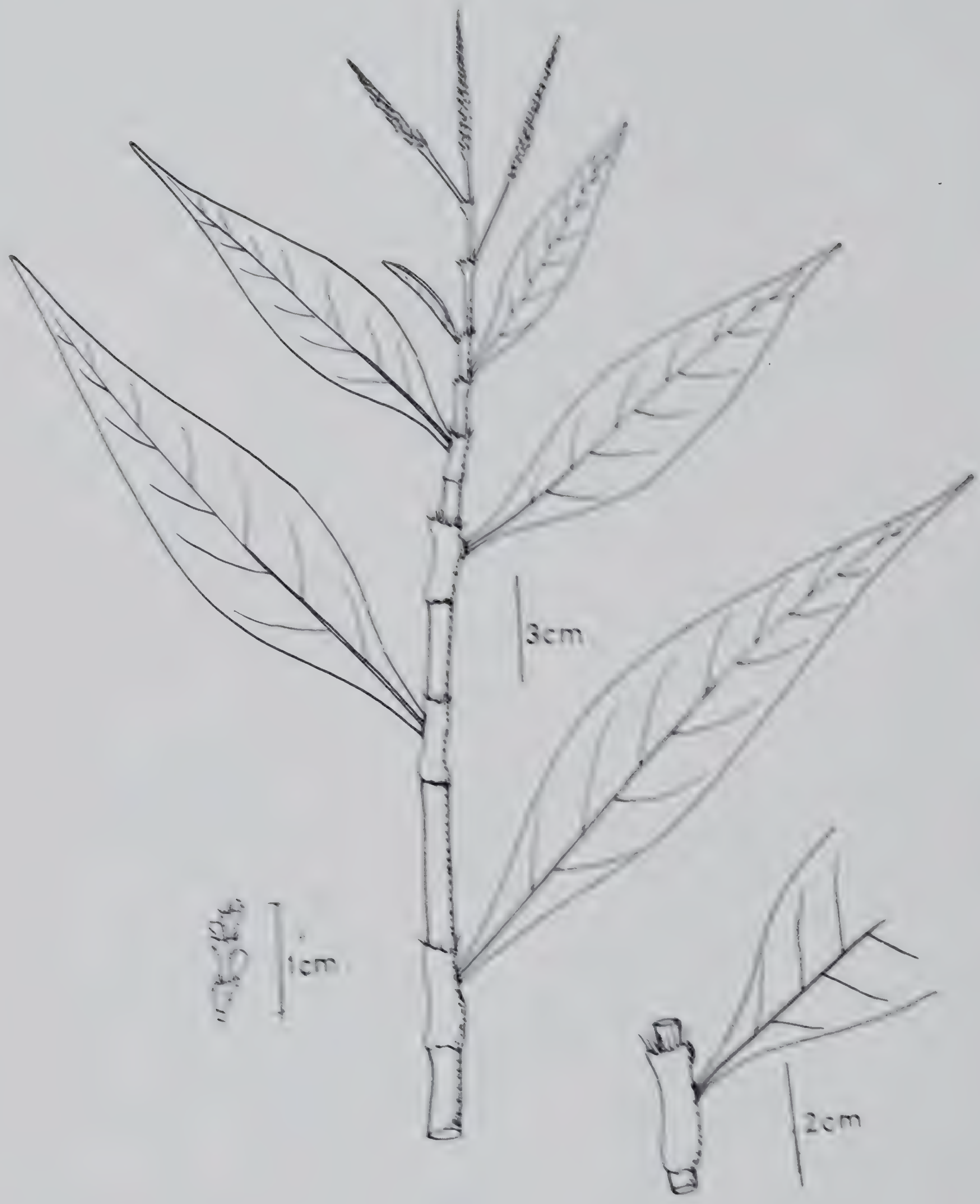
Polygonum barbatum L.

Characteristics	:	An erect glabrous herb, rooting at lower nodes. Leaves elliptic-oblong, acute at apex. Stipules (ochrea) strigose with long cilia at mouth. Flowers white, in terminal spicate racemes. Nutlets trigonous, polished.
Habitat	:	Moist shaded areas or shallow water along the margin of aquatic area.
Fl. & Fr.	:	September to April.
Reference	:	FBI. 5:37; FD. 306; HFD. 441; FNER. 359



Polygonum glabrum Willd.

Characteristics	:	An erect or decumbent, glabrous herb, usually with red-shaded stem. Leaves lanceolate, acuminate at apex. Stipule membranous, non-ciliate. Flowers pinkish, in terminal racemes. Nutlets biconvex, dark brown or black, polished.
Habitat	:	Shallow water areas along the margin of aquatic areas; common near Manasarovar.
Fl. & Fr	:	October to April.
Reference	:	FBI. 5:34; FD. 306; FNER. 360; FTD. 169



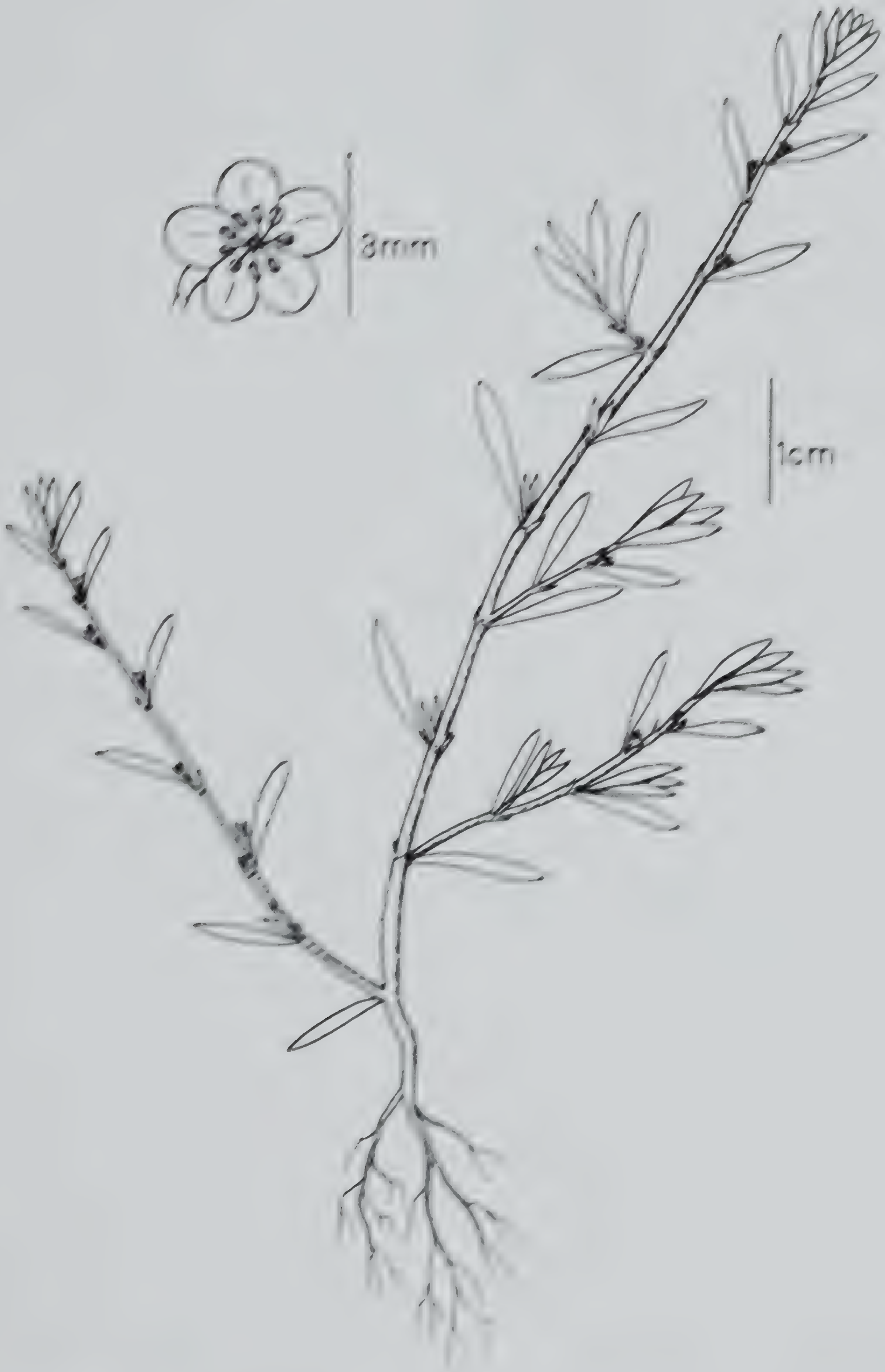
Polygonum limbatum Meissn.

Characteristics : An erect or decumbent, stout herb, rooting at lower nodes. Leaves lanceolate, acuminate at apex, scabrous on surface. Stipules strigose with short cilia at mouth. Flowers pinkish, in terminal racemes. Nutlets orbicular, flattened, with convex faces.

Habitat : Found in small patches surrounded by *Paspalum distichum* in shallow water area.

Fl. & Fr. : November to March.

Reference : FBI. 5:30



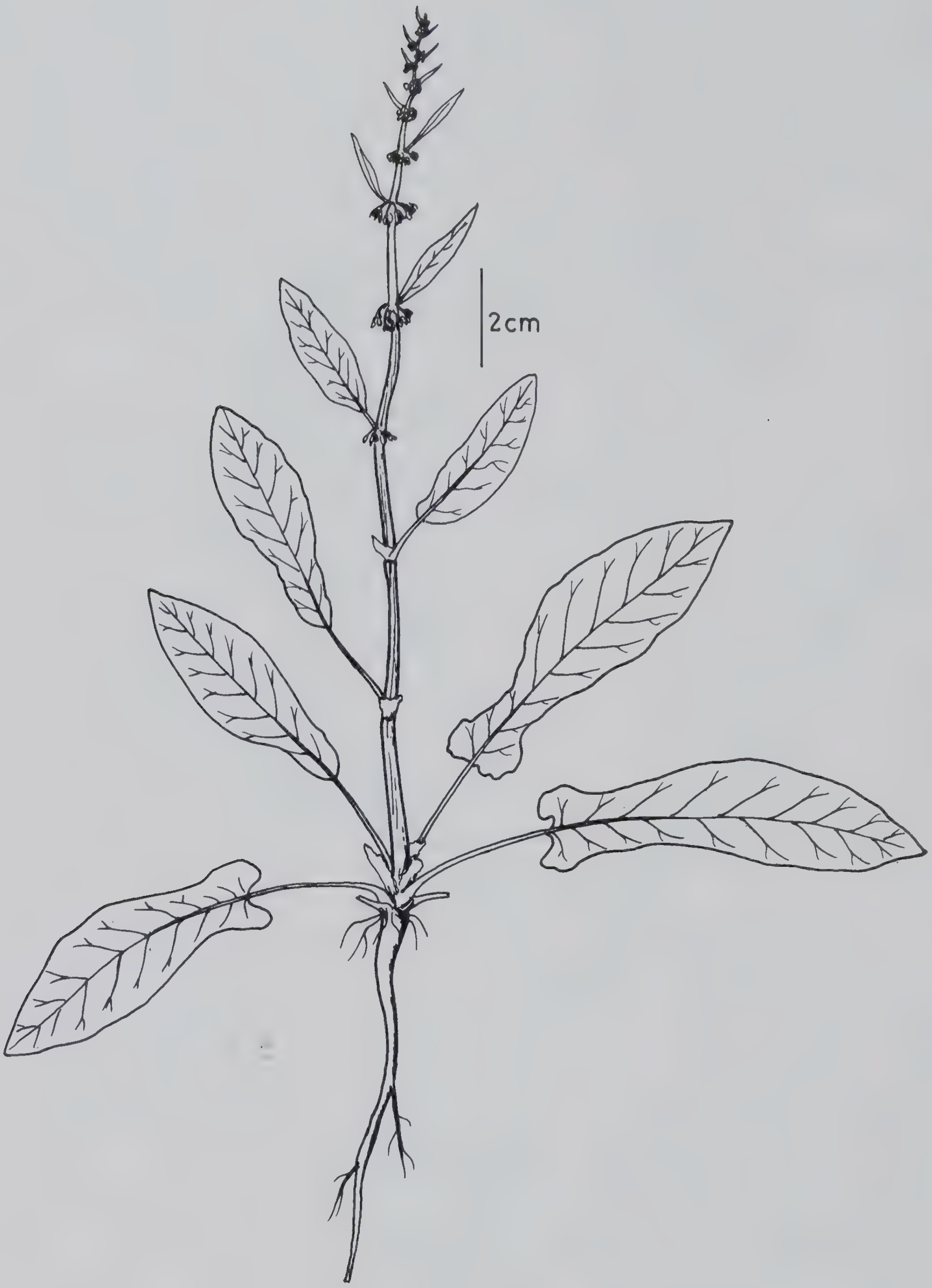
Polygonum plebeium R. Br.

Characteristics : A diffuse or prostrate, branching herb with woody rootstock. Leaves linear, oblong or obovate, sessile. Stipules hyaline, irregularly divided at mouth. Flowers pink, in axillary clusters. Nutlets black, shiny, covered by persistent perianth.

Habitat : Common in wet soil.

Fl. & Fr. : January to May.

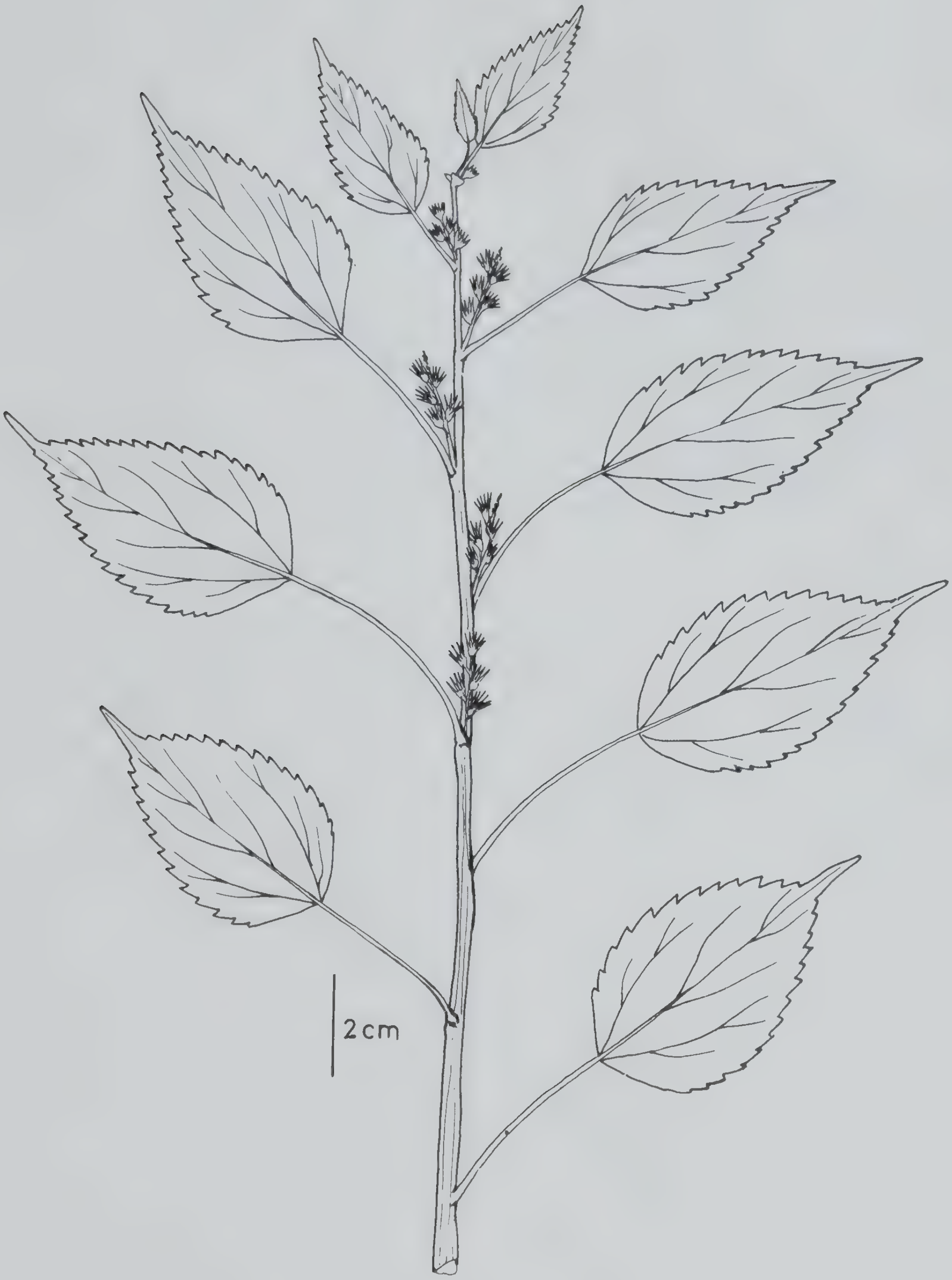
Reference : FBI. 5:27; FUGP. 3:31; FD. 305



RUMEX L.

Rumex dentatus L.

Local name	:	Jangli Palak
Characteristics	:	An erect, annual herb with long tap root. Stem grooved, often reddish. Leaves oblong, rounded at apex, rounded or cordate at base; petiole long in basal leaves. Flowers green, arranged in axillary clusters. Fruits trigonous nutlets, almost winged.
Habitat	:	Very common in moist soil in late winter. Zonation of this plant can be seen along the margin of aquatic area.
Fl. & Fr.	:	January to May.
Reference	:	FBI. 5:59; FD. 307; FID. 334; FNER. 362

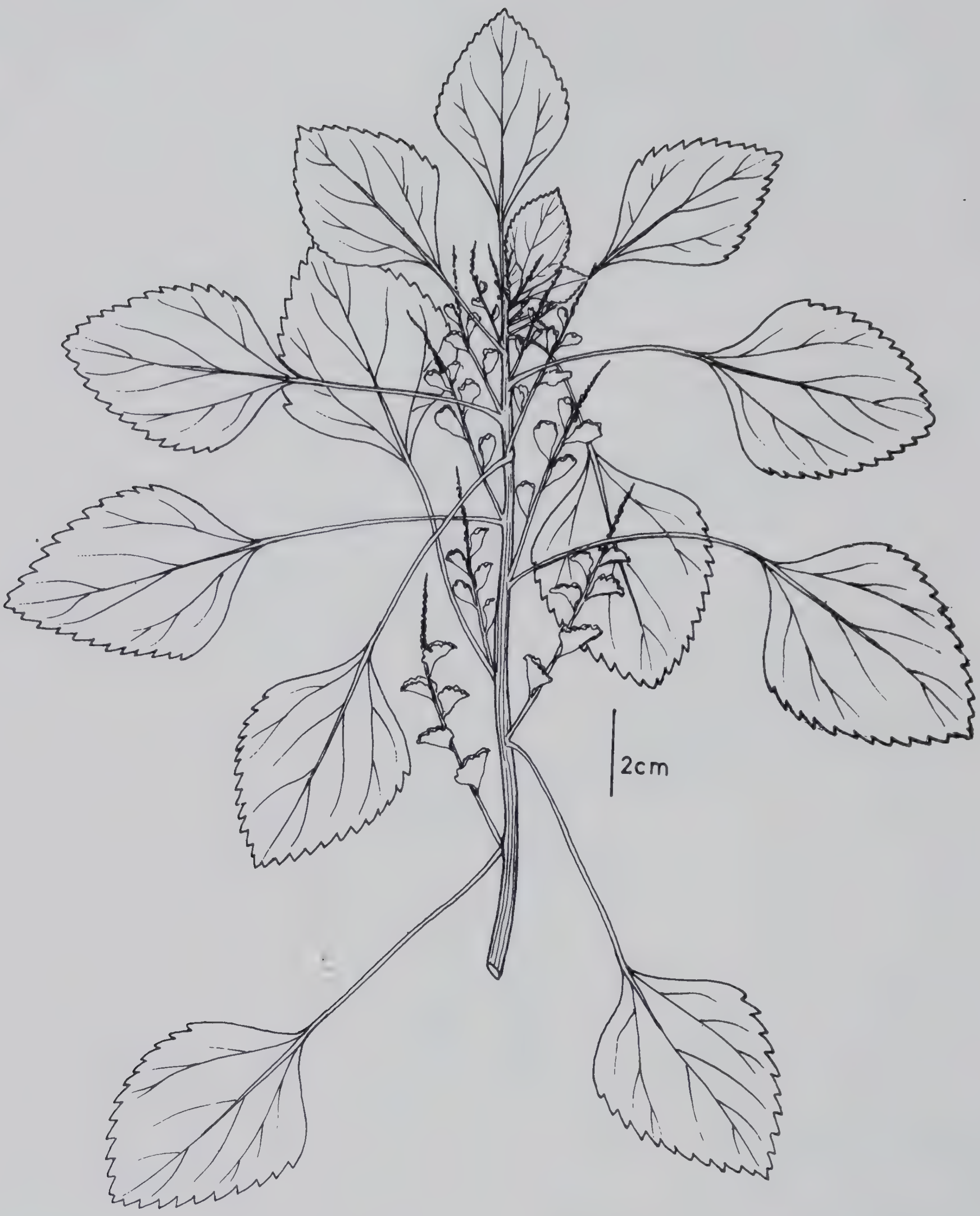


63. EUPHORBIACEAE

ACALYPHA L.

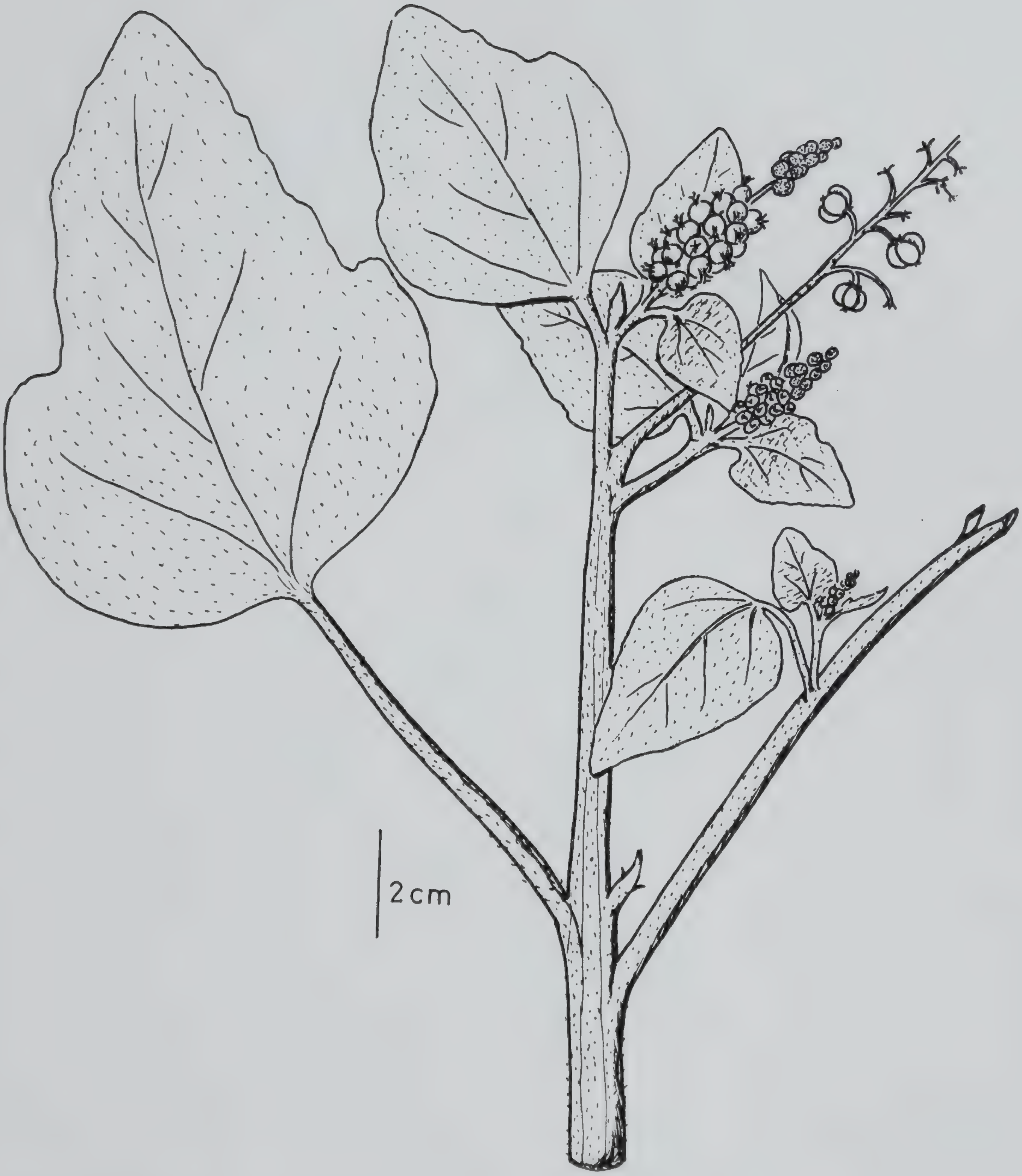
Acalypha ciliata Forsk.

Characteristics	:	An erect herb with pubescent to glabrous stem. Leaves ovate-elliptic or rhomboid-ovate, rounded or cuneate at base, finely serrate at margin. Inflorescence an axillary spike with 7 to 10 female flowers at base and a few minute male flowers at apex. Female bracts orbicular, toothed. Fruit a glabrous capsule, concealed by the bract. Seeds ovoid, minutely pitted.
Habitat	:	Moist shaded areas along roadsides; not common.
Fl. & Fr.	:	September to December.
Reference	:	FBI. 5:417; FID. 337; FNER. 366; FBR. 205



Acalypha indica L.

Characteristics	:	Erect herbs with many ascending branches. Leaves rhomboid-ovate or ovate-lanceolate, cuneate at base, toothed at margin; petiole usually longer than the leaf blade. Inflorescence an axillary spike with unisexual flowers; male flowers minute, few, arranged on the apical portion of the spike; female flowers 3 to 5 at the lower portion, surrounded by large, shortly stalked, toothed bracts. Fruit a hispid capsule.
Habitat	:	Moist shaded areas along the roadsides; not common.
Fl. & Fr.	:	June to November.
Reference	:	FBI. 5:416; FD. 316; FID. 337; FNER. 367



CHROZOPHORA Juss.

Chrozophora rottleri (Geir.) Juss. ex Spreng.

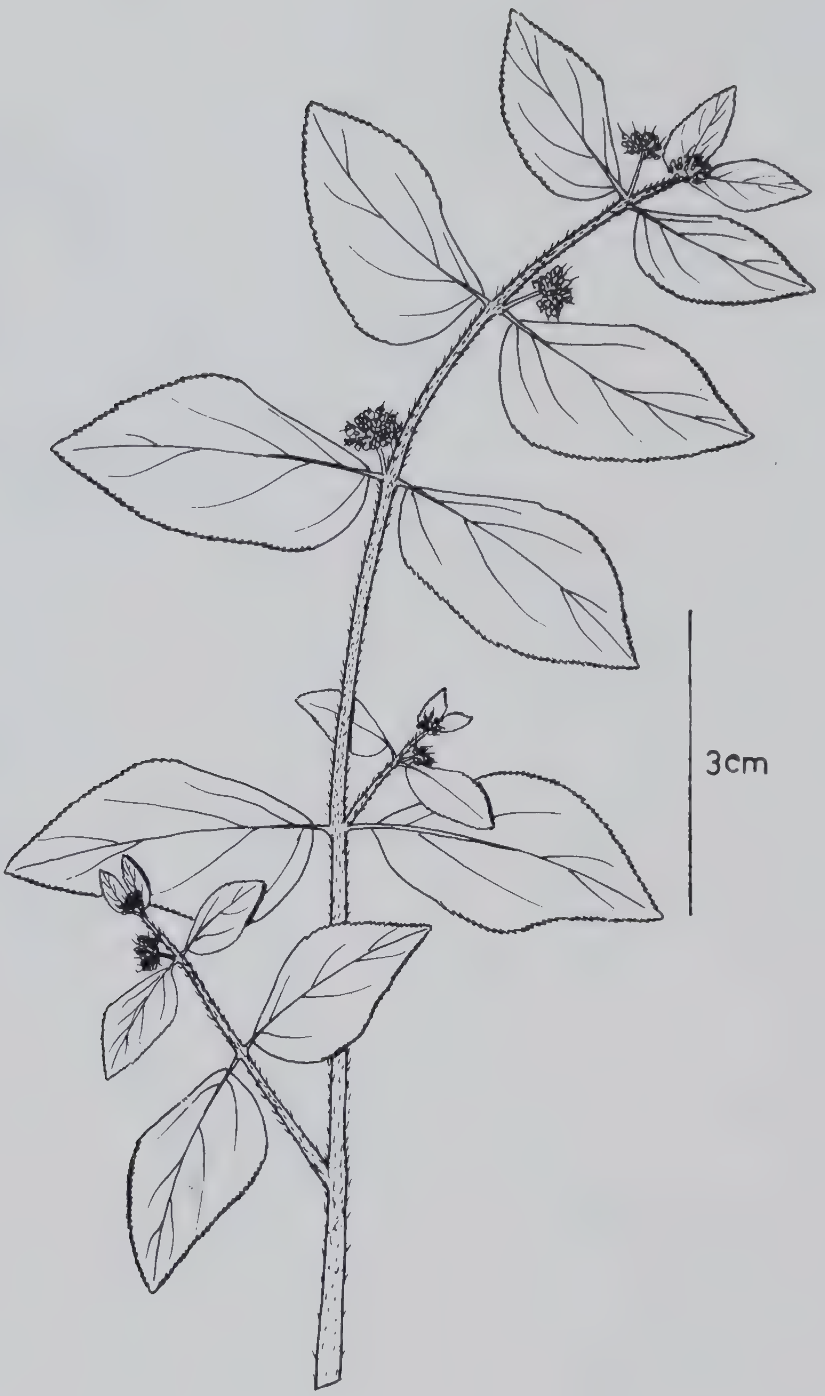
Synonym : *C. plicata* Voigt

Characteristics : An erect branched herb with dense, white pubescence. Leaves ovate to orbicular, 3-lobed, often wrinkled, stellate hairy on both surfaces. Flowers yellow, arranged in terminal racemes. Fruit a purple, hairy capsule.

Habitat : Open areas throughout the uplands; not common.

Fl. & Fr. : December to April.

Reference : FUGP. 3:105; FNER. 369; FHD. 334; FBR. 207



EUPHORBIA L.

Euphorbia hirta L.

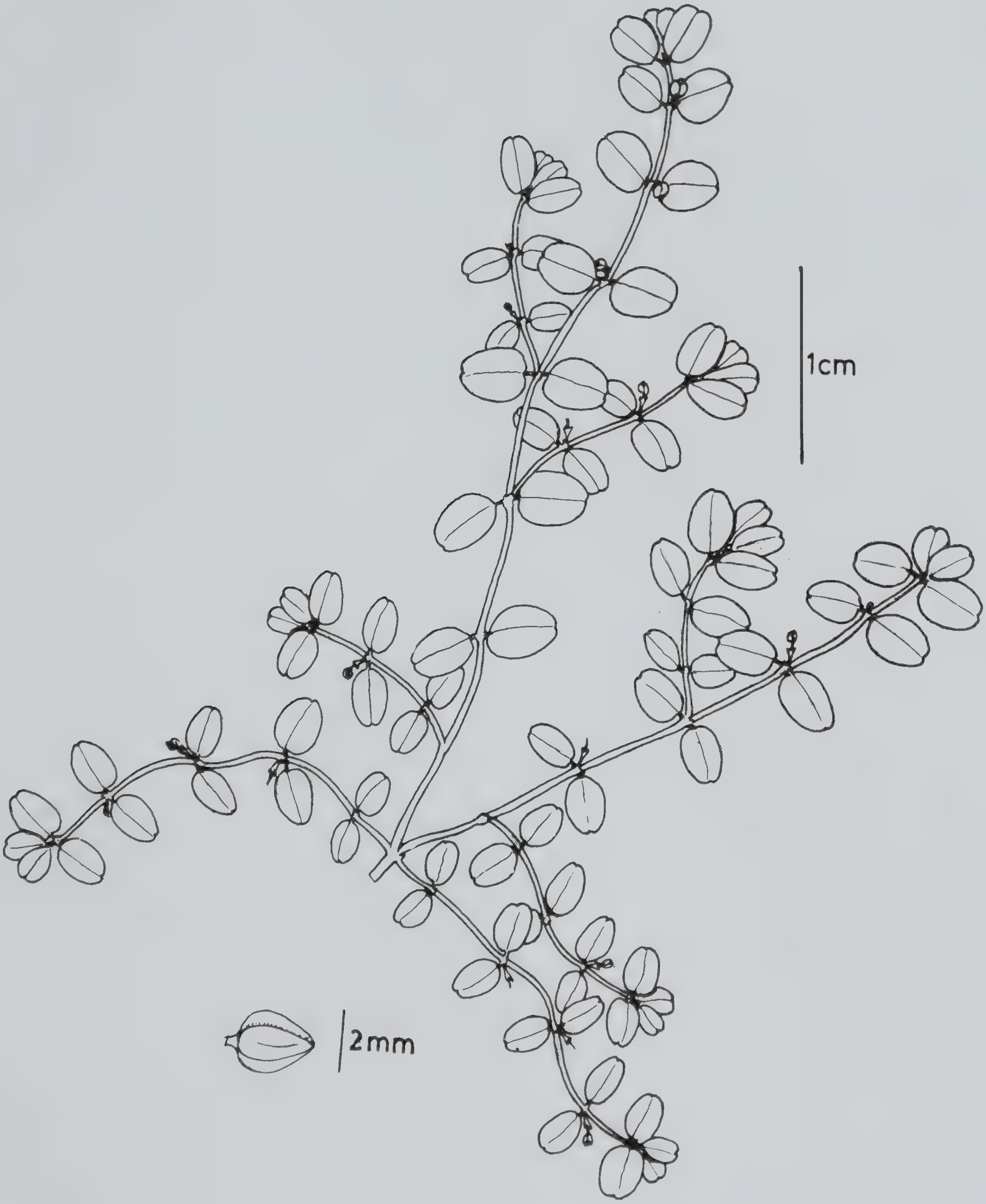
Synonym : *E. pilulifera* Hook. f.

Characteristics : An erect to decumbent herb, branching from the base. Stem clothed with minute yellowish hairs. Leaves opposite, ovate or rhomboid-oblong, unequal sided, hispid with minute hairs, finely serrate at margin. Inflorescence an axillary cyme of many flowers, in every alternate axil of subsequent pairs of leaves. Involucre cup-shaped, 5-lobed, with erect glands. Fruit a minutely hairy capsule with transversely rugose, reddish brown seeds.

Habitat : Common along roadsides and scattered throughout the uplands.

Fl. & Fr. : Almost throughout the year.

Reference : FBI. 5:250; FUGP. 3:80; FD. 312; FID. 342; FNER. 373



Euphorbia orbiculata H. B. & K.

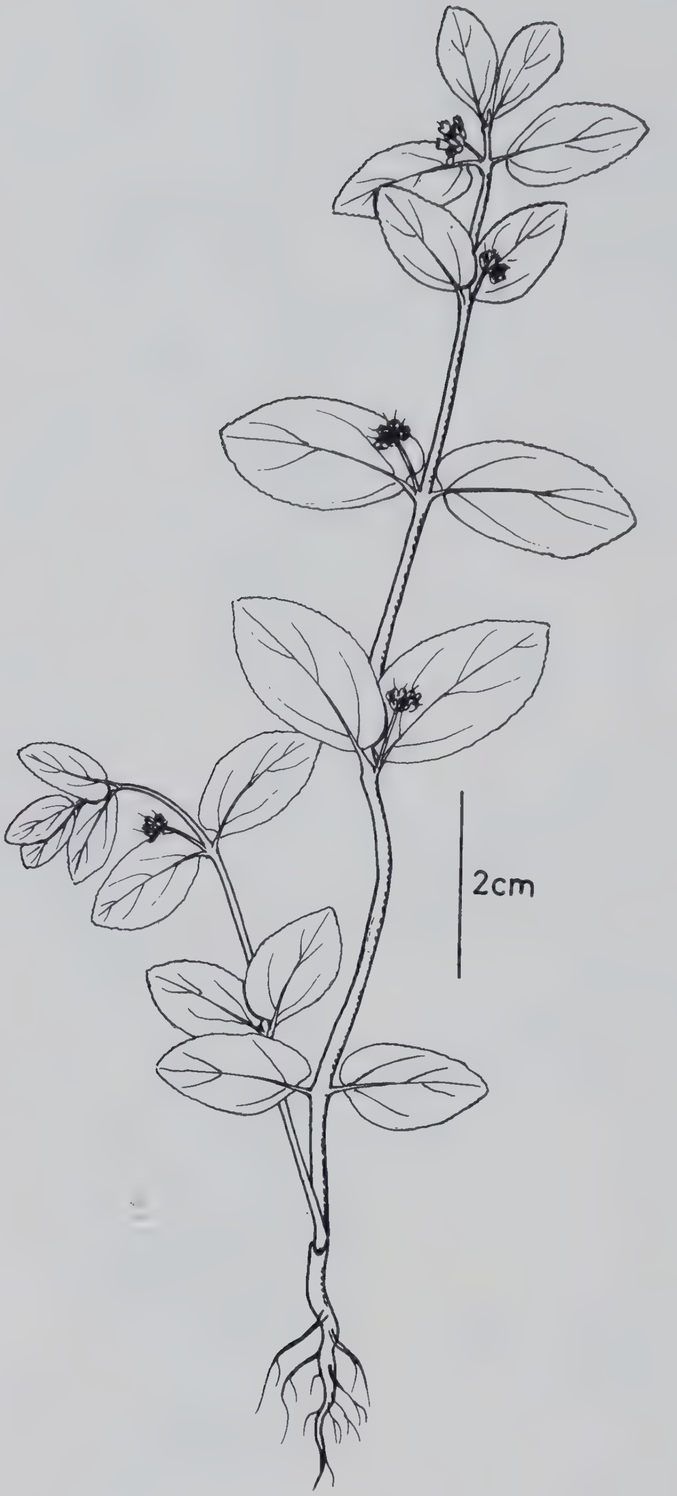
Synonym : *E. microphylla* Heyne

Characteristics : A small prostrate herb with many dichotomously branched, glabrous stems. Leaves opposite, 2 to 6 mm long, obliquely oblong; margin often pink, more or less toothed. Involucre axillary, bell-shaped, 5-lobed. Fruit a globular capsule. Seeds 4-angled.

Habitat : Scattered throughout the uplands in sandy area and along roadsides.

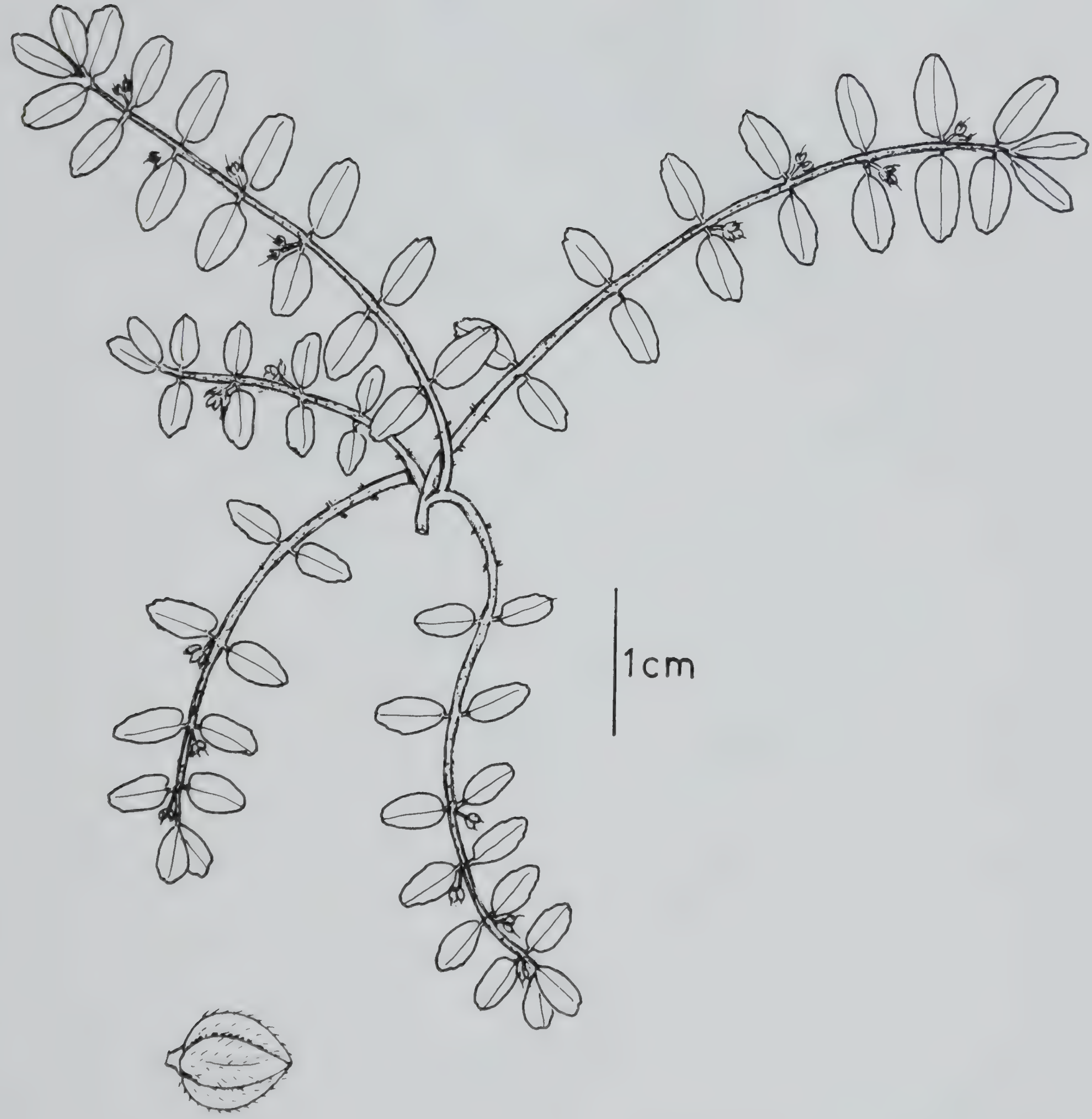
Fl. & Fr. : September to May.

Reference : FBI. 5:252; FID. 343; FNER. 375



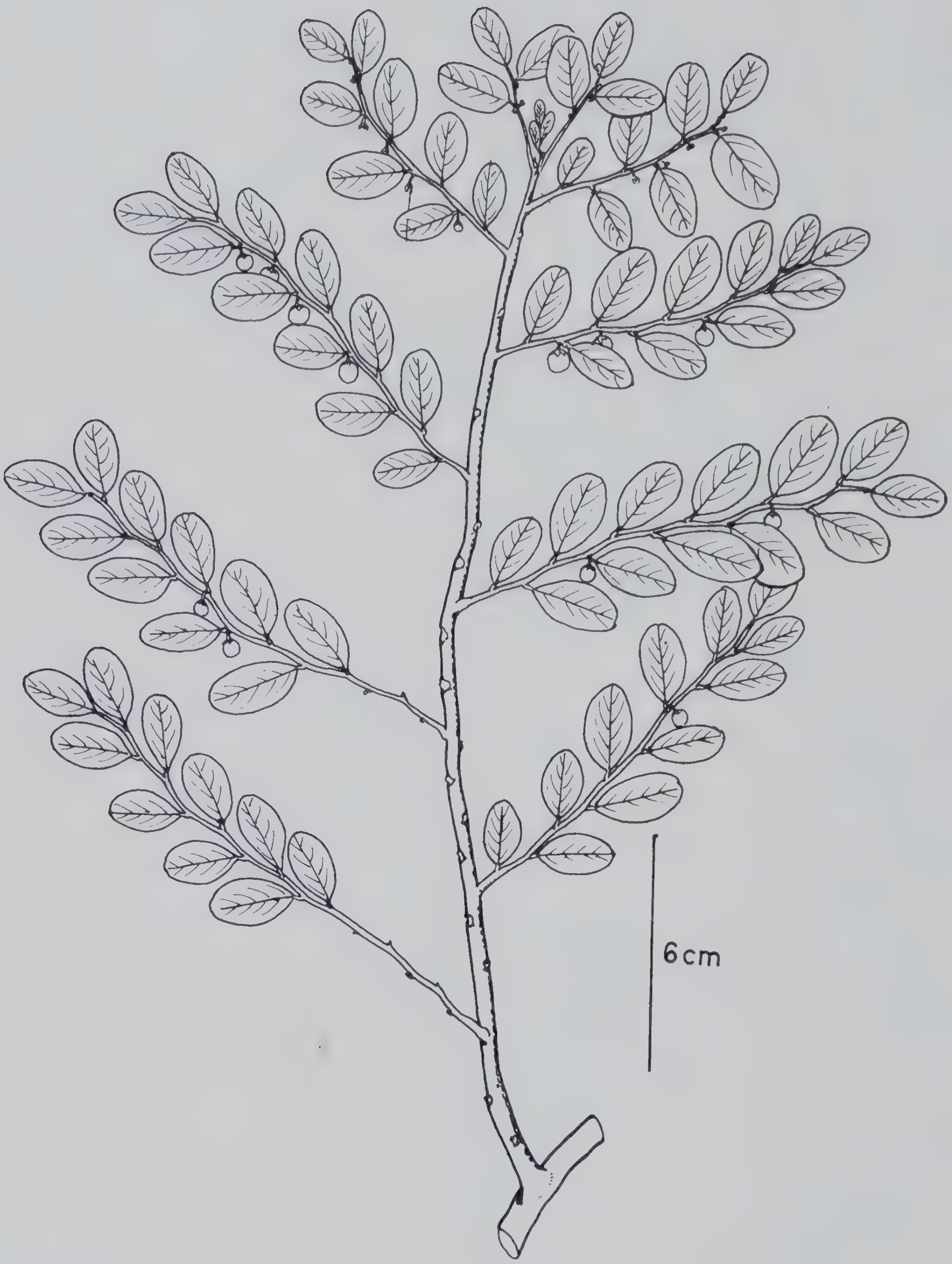
Euphorbia parviflora L.

Synonym	:	*E. hypericifolia* L.
Characteristics	:	An erect or ascending herb, branching from the base. Leaves opposite, broadly oblong or elliptic-ovate, oblique at base, rounded at apex; margin minutely serrulate or entire. Inflorescence few to many-flowered axillary cyme. Involucre minute, cup-shaped, 5-lobed, with appendaged glands. Fruit a pubescent capsule with 4-angled seeds.
Habitat	:	Scattered throughout the uplands in moist soil, along the banks of aquatic area and along roadsides.
Fl. & Fr.	:	July to November and February to April.
Reference	:	FBI. 5: 249; FUGP. 3:80; FD. 312; FID. 343; FNER. 375



Euphorbia thymifolia L.

Characteristics	:	A small, prostrate herb with spreading branches. Stem pubescent. Leaves opposite, 2 to 6 mm long, oblong or elliptic-oblong, rounded at apex, base unequal-sided, crenulate at margin. Involucre axillary, solitary or 2 to 3 together. Fruit a pubescent capsule with 4-angled, transversely furrowed seeds.
Habitat	:	Scattered throughout the uplands along roadsides and near aquatic area.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 5:252; FD. 313; FID. 344; FNER. 377



KIRGANELIA Juss.

Kirganelia reticulata (Poir.) Baill.

Synonym : *Phyllanthus reticulatus* Poir.

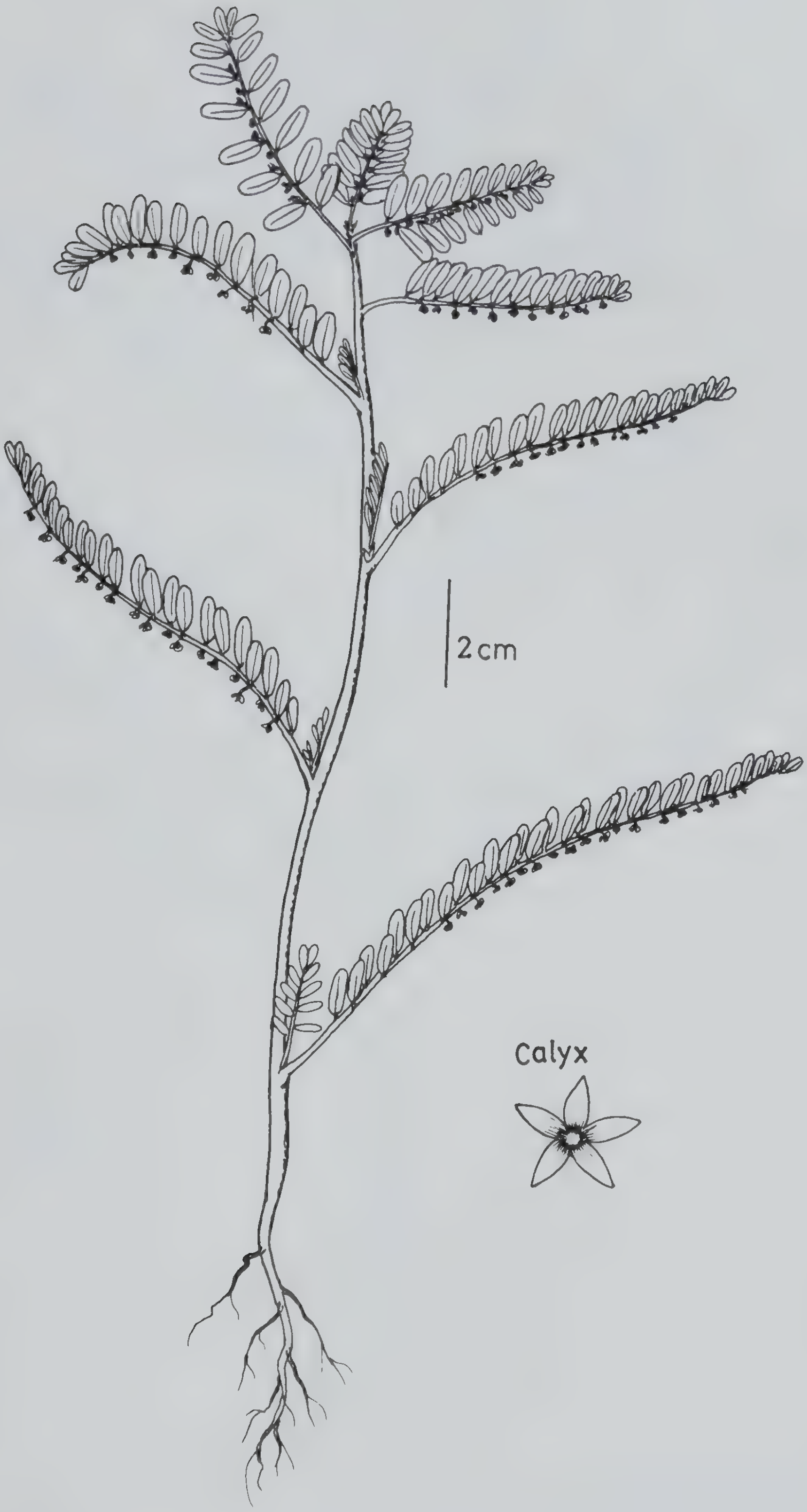
Local name : Makhi

Characteristics : A large straggling shrub, up to 4 m high. Leaves alternate, oblong or elliptic. Flowers unisexual; male flowers purplish, arranged in clusters of 2 to 4 in leaf axils. Female flowers solitary, axillary. Fruit a globose berry, dark purple when ripe. Seeds trigonous, punctate, shiny.

Habitat : Common in temporarily water logged areas and along the dykes; also seen in drier areas along with other shrubs.

Fl. & Fr. : May to October.

Reference : FBI. 5:288; FUGP. 3:95; FD. 320; FBR. 211



PHYLLANTHUS L.

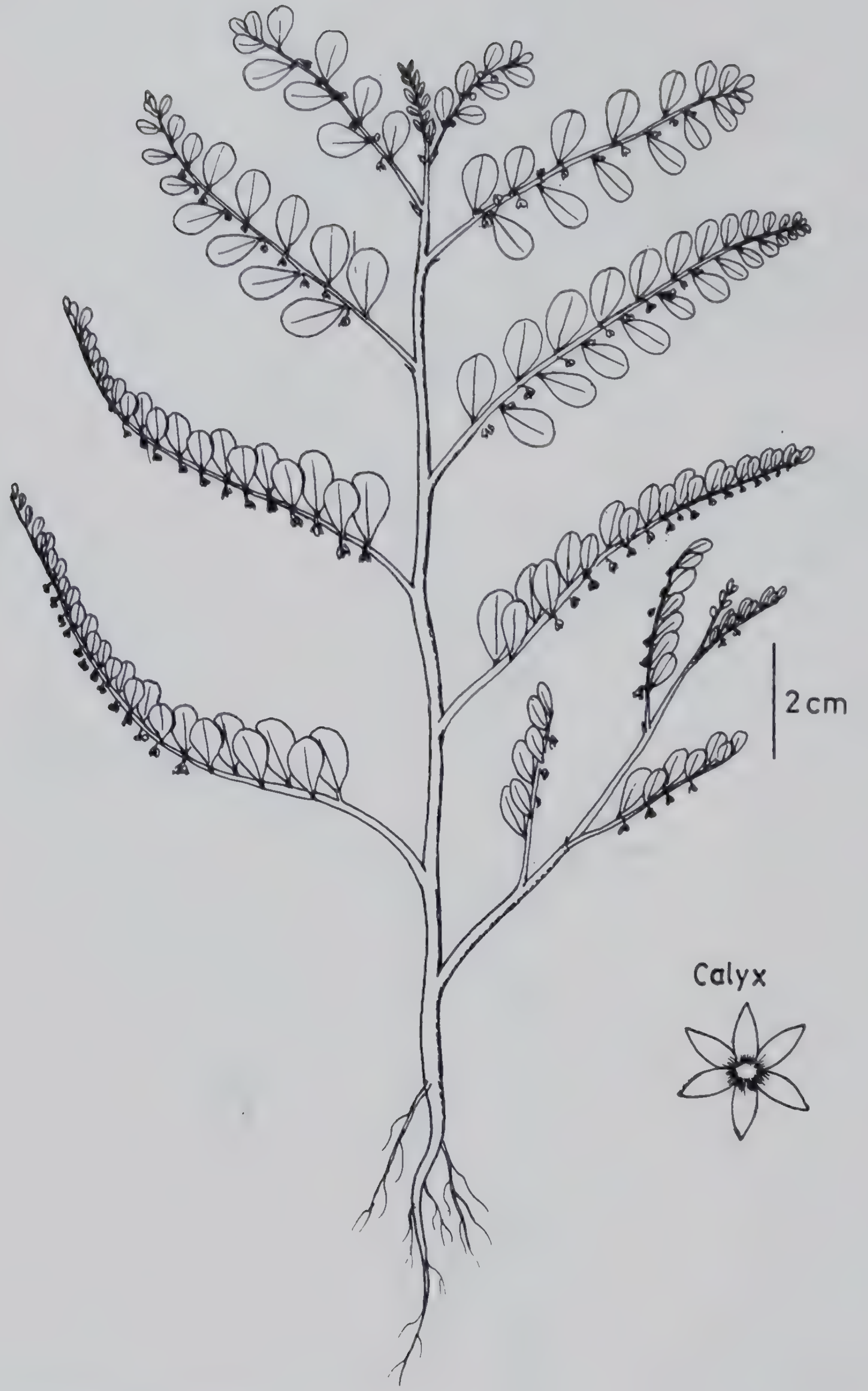
Phyllanthus amarus Schum. & Thonn.

Characteristics : An erect or ascending herb, up to 50 cm high. Leaves elliptic-oblong, arranged alternately on 4 to 8 cm long branchlets. Flowers minute, unisexual, axillary; calyx lobes 5. Fruit a trigonous capsule with trigonous seeds.

Habitat : Moist soil along the roadsides and scattered throughout the uplands; common after rainy season.

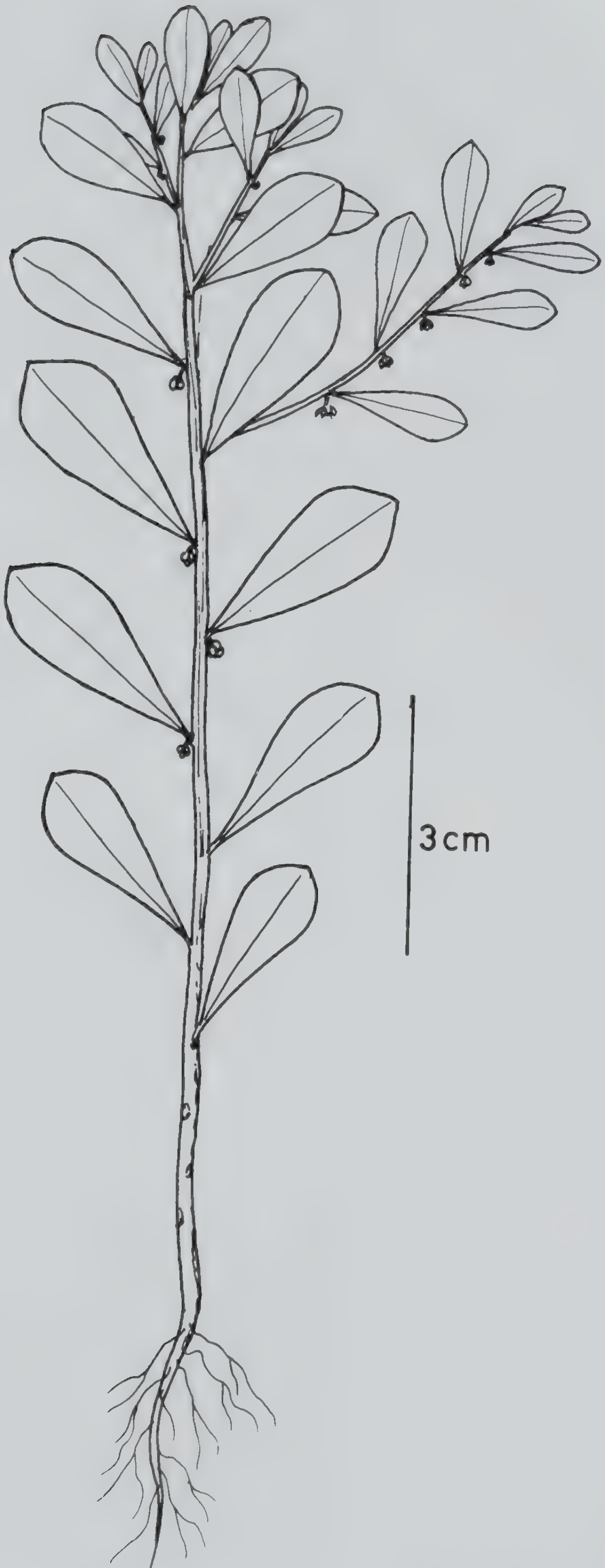
Fl. & Fr. : July to November.

Reference : FID. 345



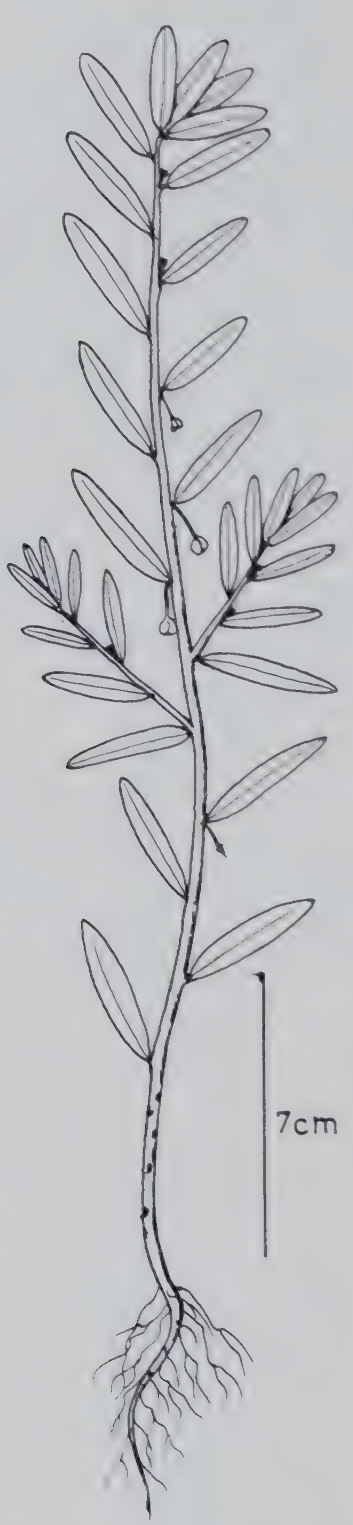
Phyllanthus fraternus Webster

Synonym	: *P. niruri* Sensu Hook. f., non L.
Characteristics	: An erect, glabrous herb with spreading branches. Leaves small, glabrous, elliptic or oblong, rounded at tip. Flowers greenish yellow, unisexual, calyx lobes 6; male flowers in clusters of 1 to 3 in leaf axils; female flowers solitary. Fruit a smooth, slightly lobed, globose capsule. Seeds trigonous, brown.
Habitat	: Moist soil along roadsides and throughout the uplands; common after rain.
Fl. & Fr.	: July to November.
Reference	: FBI. 5:298; FD. 320; FID. 346; FBR. 212



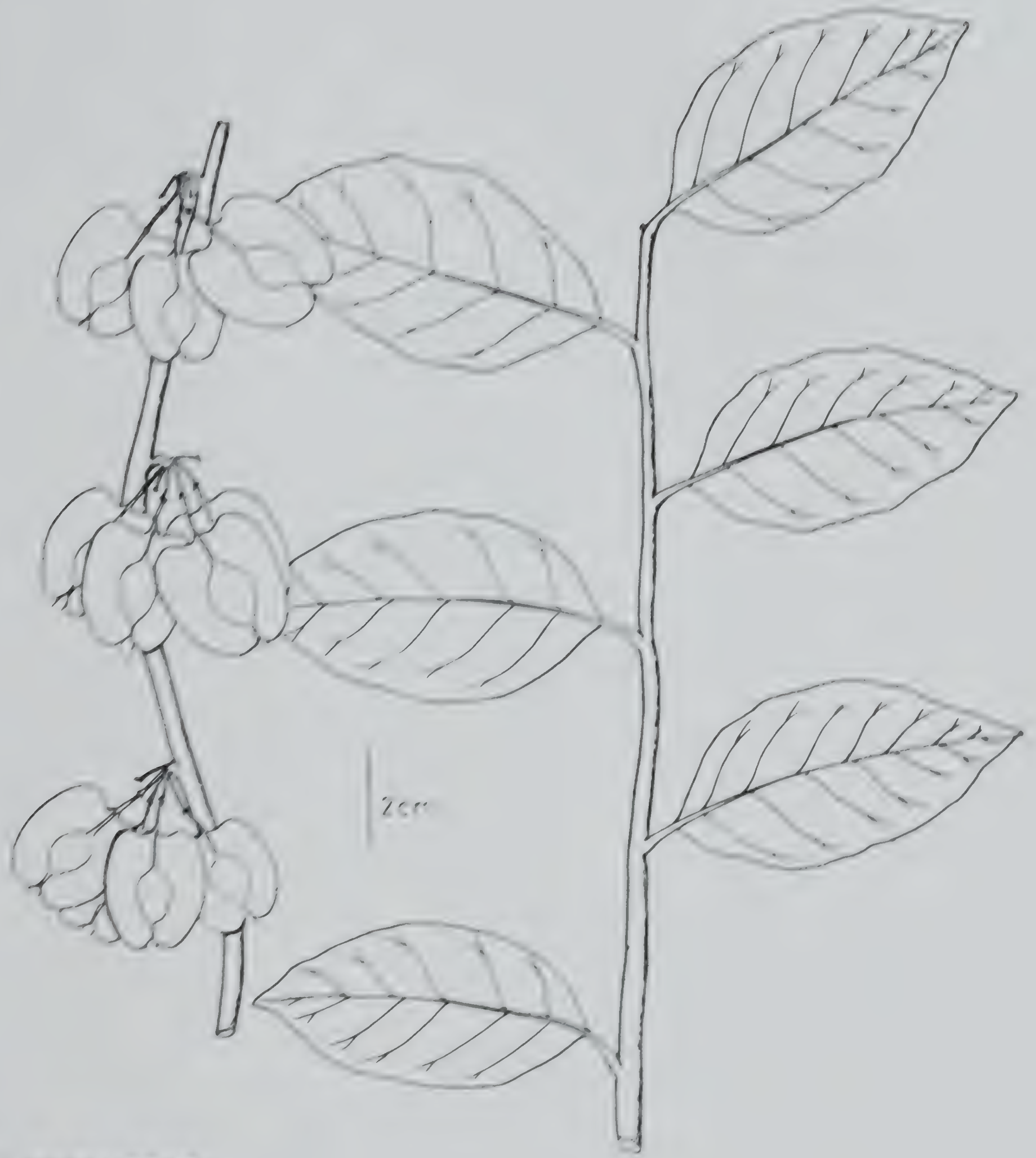
Phyllanthus maderaspatensis L.

Characteristics :	An erect, glabrous herb with angular branches. Leaves oblanceolate or obovate, tapering at base. Flowers unisexual; male flowers minute, arranged in axillary clusters; female flowers solitary. Fruit a 3-lobed, globose capsule, subtended by persistent calyx. Seeds trigonous, convex at back.
Habitat :	Moist soil in low-lying, open areas; common after rainy season.
Fl. & Fr. :	August to November.
Reference :	FBI. 5:292; FUGP. 3:97; FD. 319; FID. 346; FNER. 380



Phyllanthus virgatus Forst. f.

Synonym	: *P. simplex* Retz.
Characteristics	: An erect, glabrous, woody herb with spreading branches. Leaves oblong-ovate, apiculate at tip. Stipules peltate or sagittate. Flowers unisexual, axillary; male flowers in clusters; female flowers solitary, larger than males. Fruit a 3-lobed, globose capsule. Seeds trigonous, dark brown.
Habitat	: Along roadsides in gravelly soil; not common.
Fl. & Fr.	: August to April.
Reference	: FBI. 5:295; FUGP. 3:97; FD. 319; FNER. 381



64. ULMACEAE

HOLOPTELEA Planch.

Holoptelea integrifolia (Roxb.) Planch.

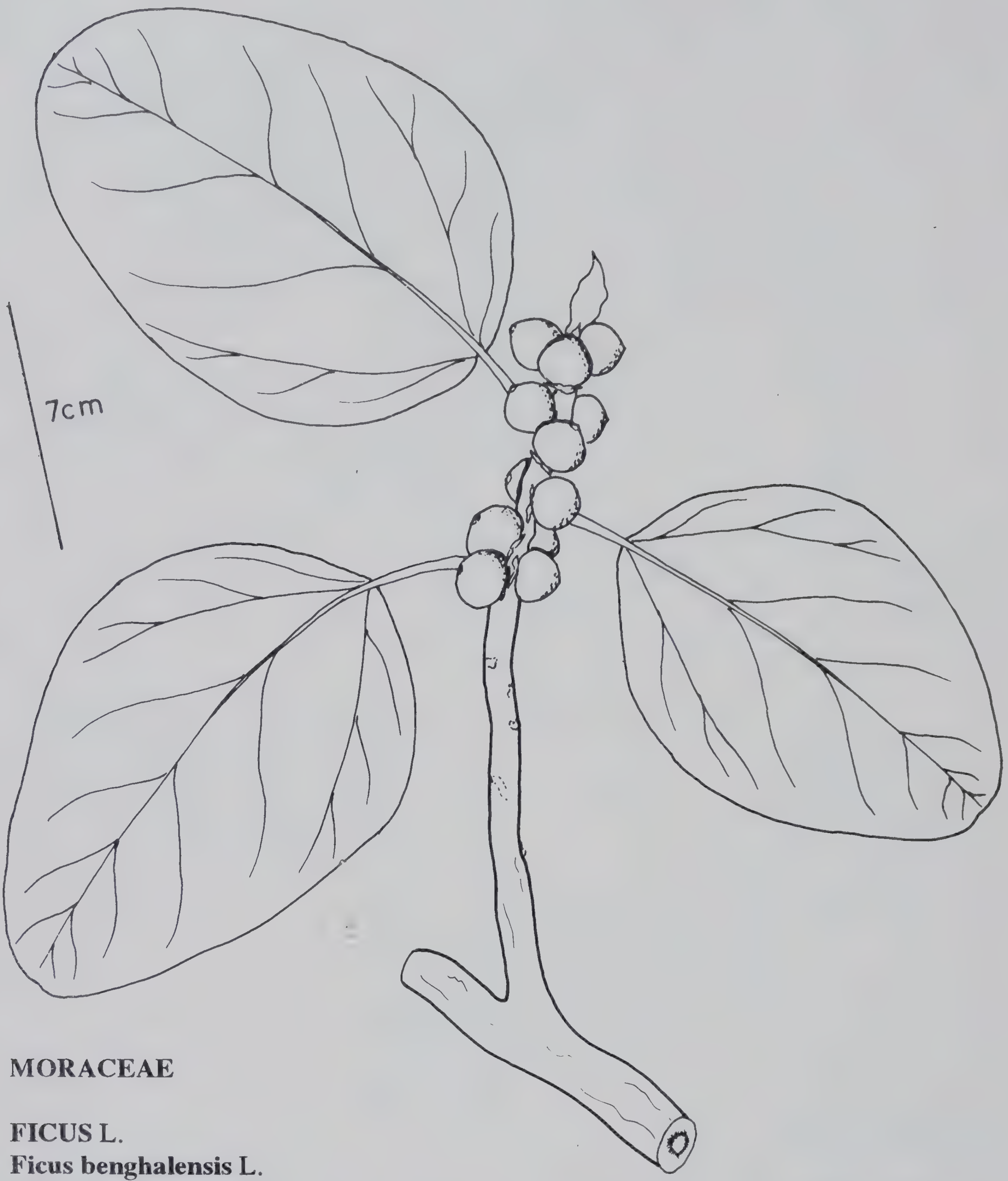
Local name : Papri

Characteristics : A large deciduous tree with whitish-grey bark. Leaves alternate, elliptic, acuminate at apex, rounded at base. Flowers greenish, both male and bisexual flowers mixed in fascicle. Flowering occurs when the tree is leafless. Fruit an orbicular samara, notched at apex.

Habitat : Along roadside and throughout the uplands.

Fl. & Fr. : March to May.

Reference : FBI. 5:481; FUGP. 3:120; FD. 321; FNER. 383; FBR. 214



MORACEAE

FICUS L.

Ficus benghalensis L.

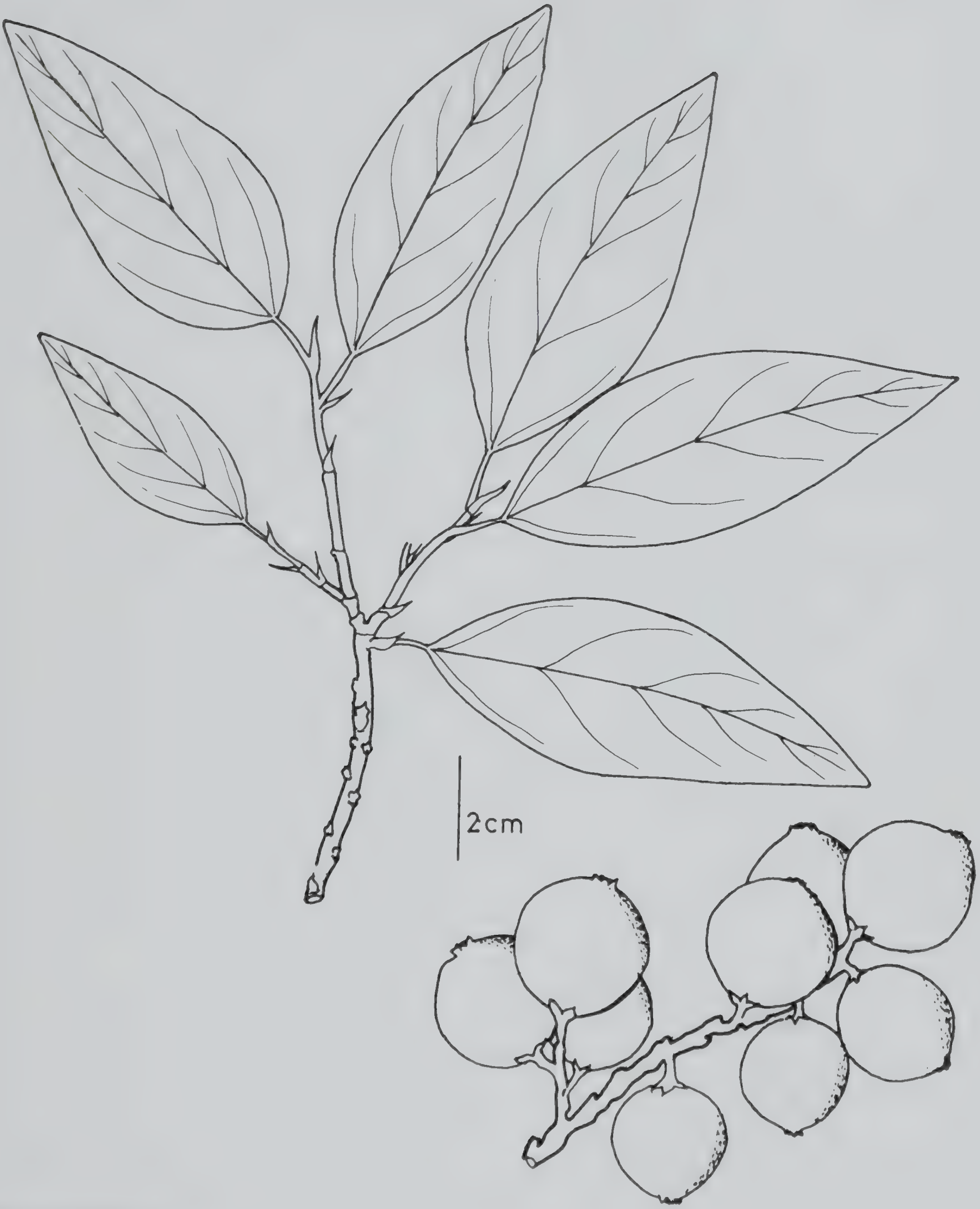
Local name : Bar

Characteristics : A large, evergreen tree with spreading branches and large aerial supporting roots. Latex milky. Leaves ovate, orbicular-ovate or elliptic, tomentose on lower surface. Stipules sheathing. Flowers unisexual, enclosed by a globose receptacle. Receptacles sessile, arranged in pairs in leaf axils, developing into a fruit called fig, red when ripe.

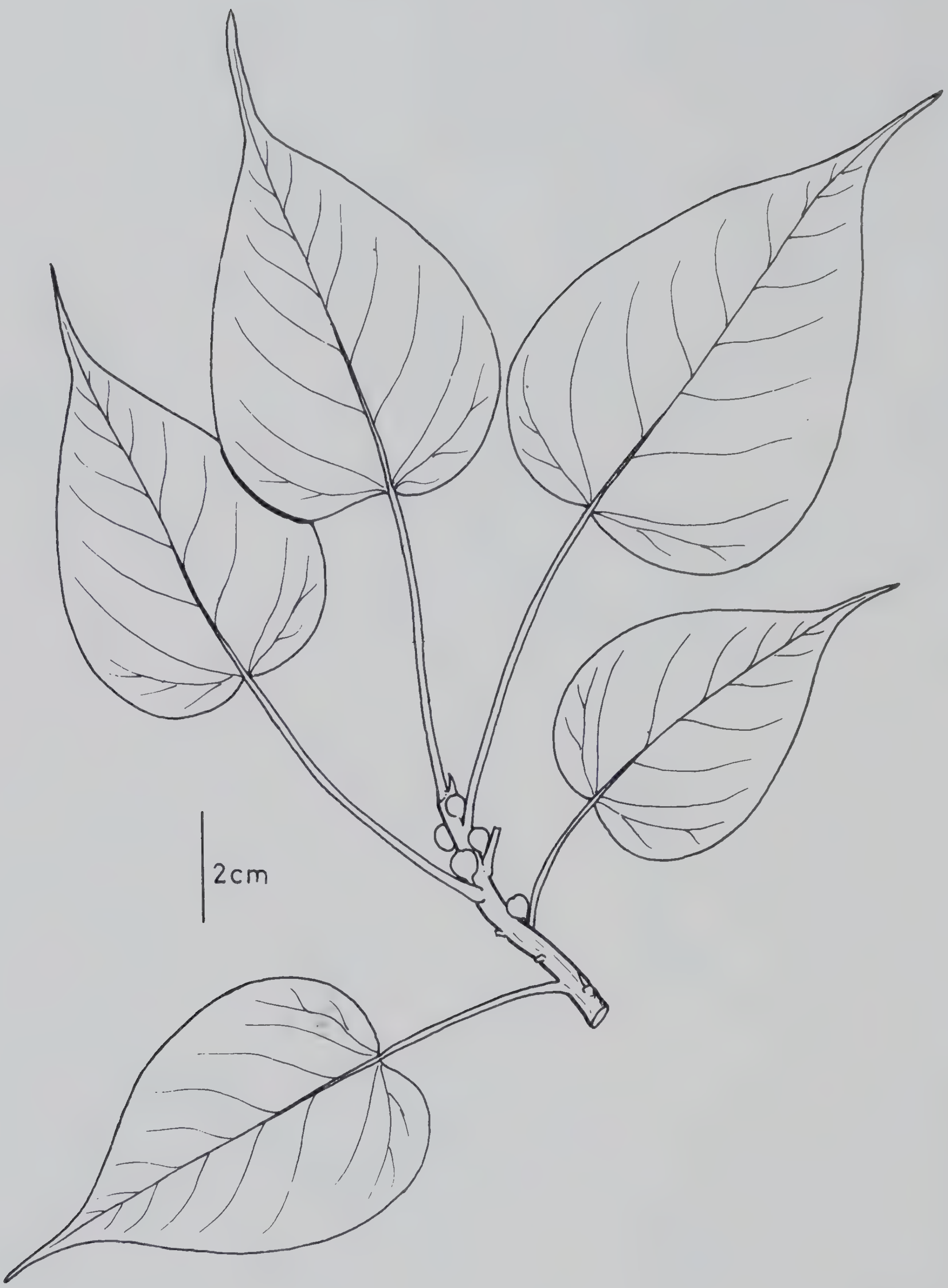
Habitat : Probably planted near Seetharam Temple; also found as an escape in Koladhar area.

Fl. & Fr. : March to May and June to September.

Reference : FBI. 5:499; FD. 324; FID. 348; FNER. 384

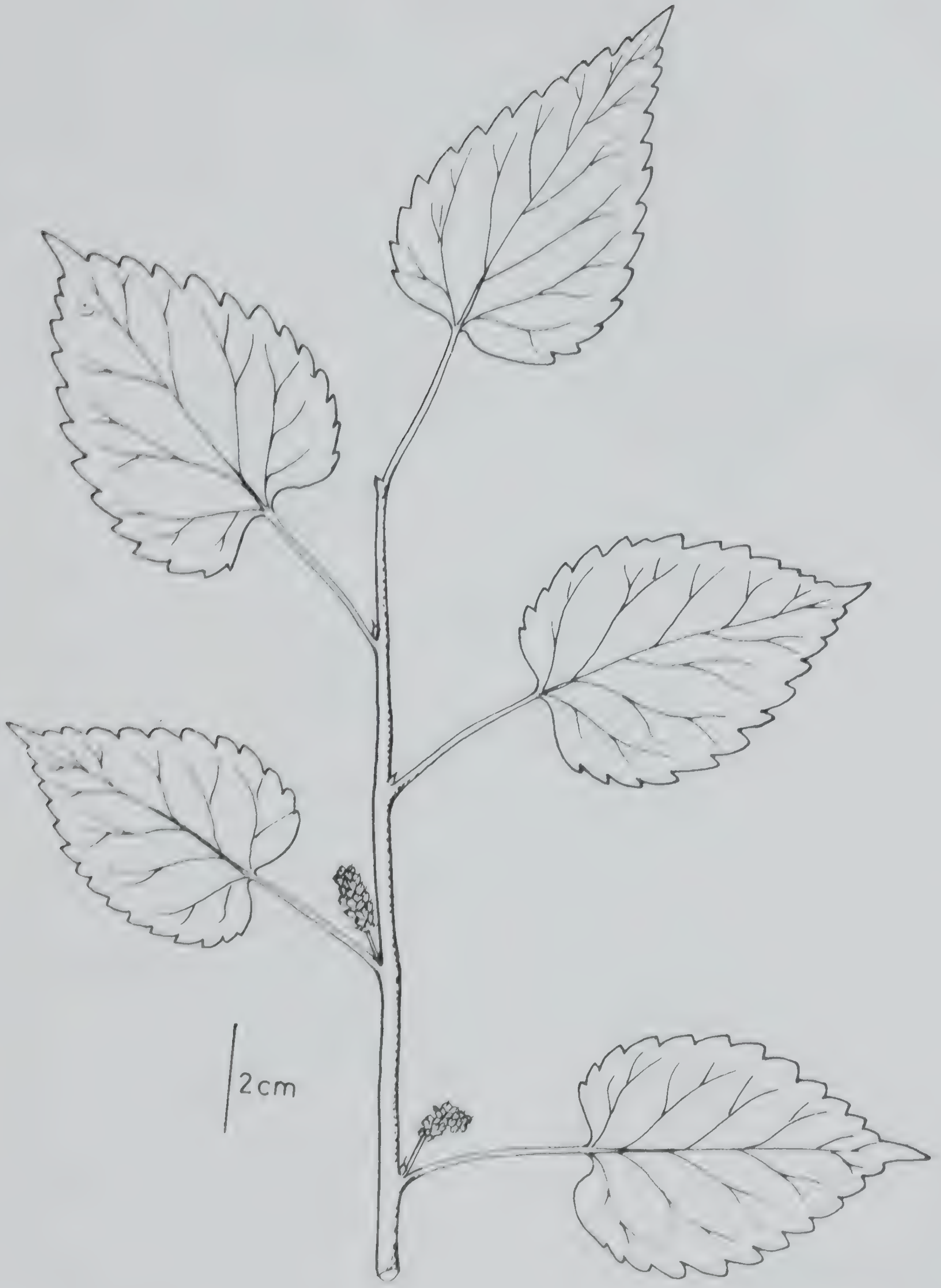


Ficus racemosa L.
Synonym : *F. glomerata* Roxb.
Local name : Gular
Characteristics : A medium sized, evergreen tree. Leaves ovate-oblong or elliptic-lanceolate, pubescent. Receptacles stalked, hairy, borne on old trunk and leafless branches, developing into a fruit called fig, reddish when ripe.
Habitat : Found along roadside.
Fl. & Fr. : April to August.
Reference : FBI. 5:535; FD.326; FNER. 385; FTD. 180



Ficus religiosa L.

Local name	:	Pipal
Characteristics	:	A medium to large sized tree with grey bark. Leaves ovate, cordate at base, long-tailed at apex; petioles long; surface glabrous and shiny. Receptacles in sessile, axillary pairs; developing into a fruit called fig, dark purple when ripe.
Habitat	:	Planted near Keoladeo Temple; also found along roadsides.
Fl. & Fr.	:	April to July.
Reference	:	FBI. 5:513; FD. 325; FID. 348; FNER. 385



MORUS L.

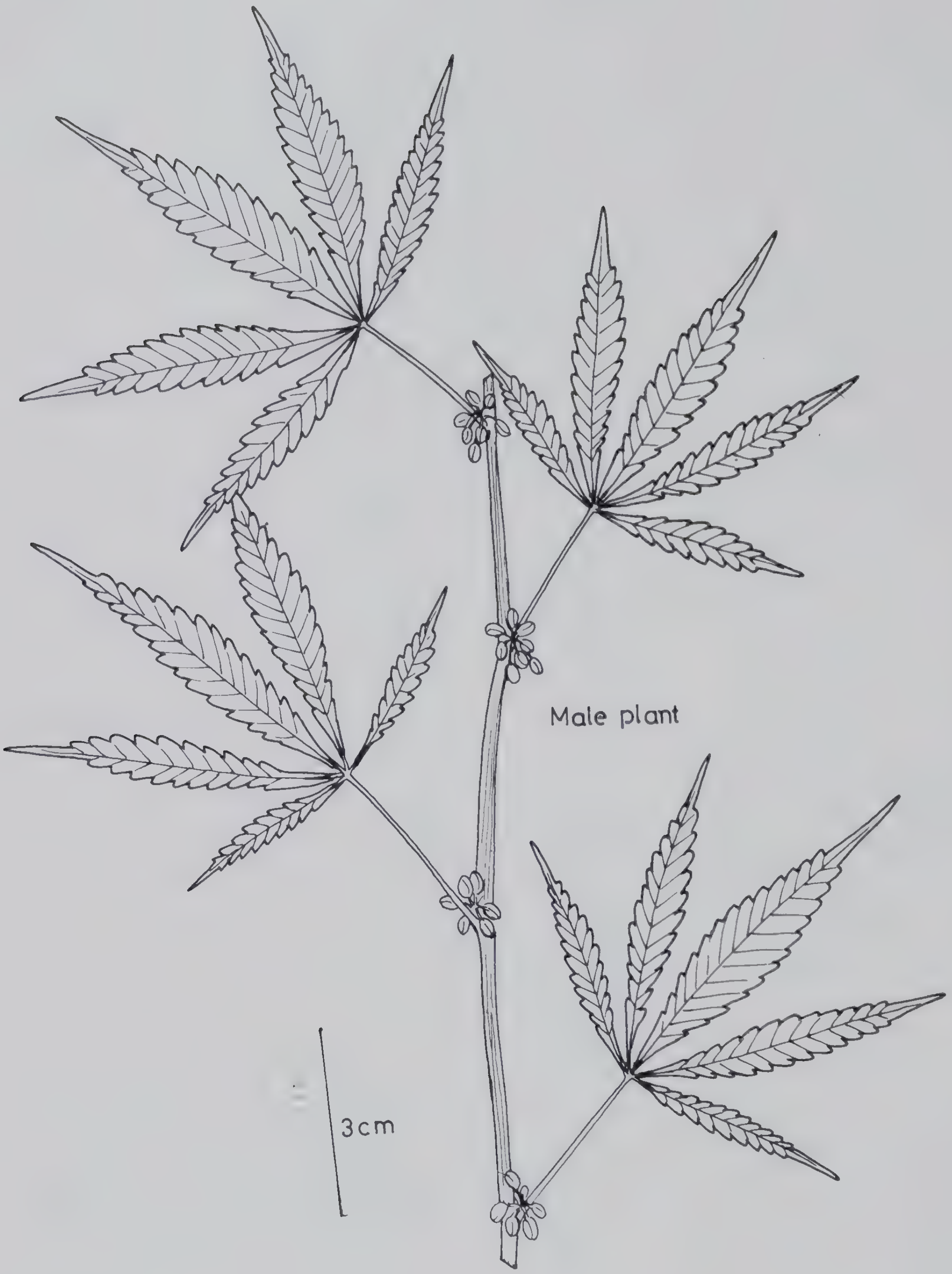
Morus alba L.

Local name : Shahtut

Characteristics : A small deciduous tree. Leaves broadly ovate, cordate at base, lobed or dentate at margin. Flowers unisexual; male flowers in catkin-like long spike; female spikes short, ovoid. Fruit fleshy, white or pale purple, turning black when ripe.

Habitat : Found in sandy humous soil; only one tree was found in the sanctuary along the road beyond Seetharam Temple.

Reference : FBI. 5:492; FUGP. 3:137; FD. 328

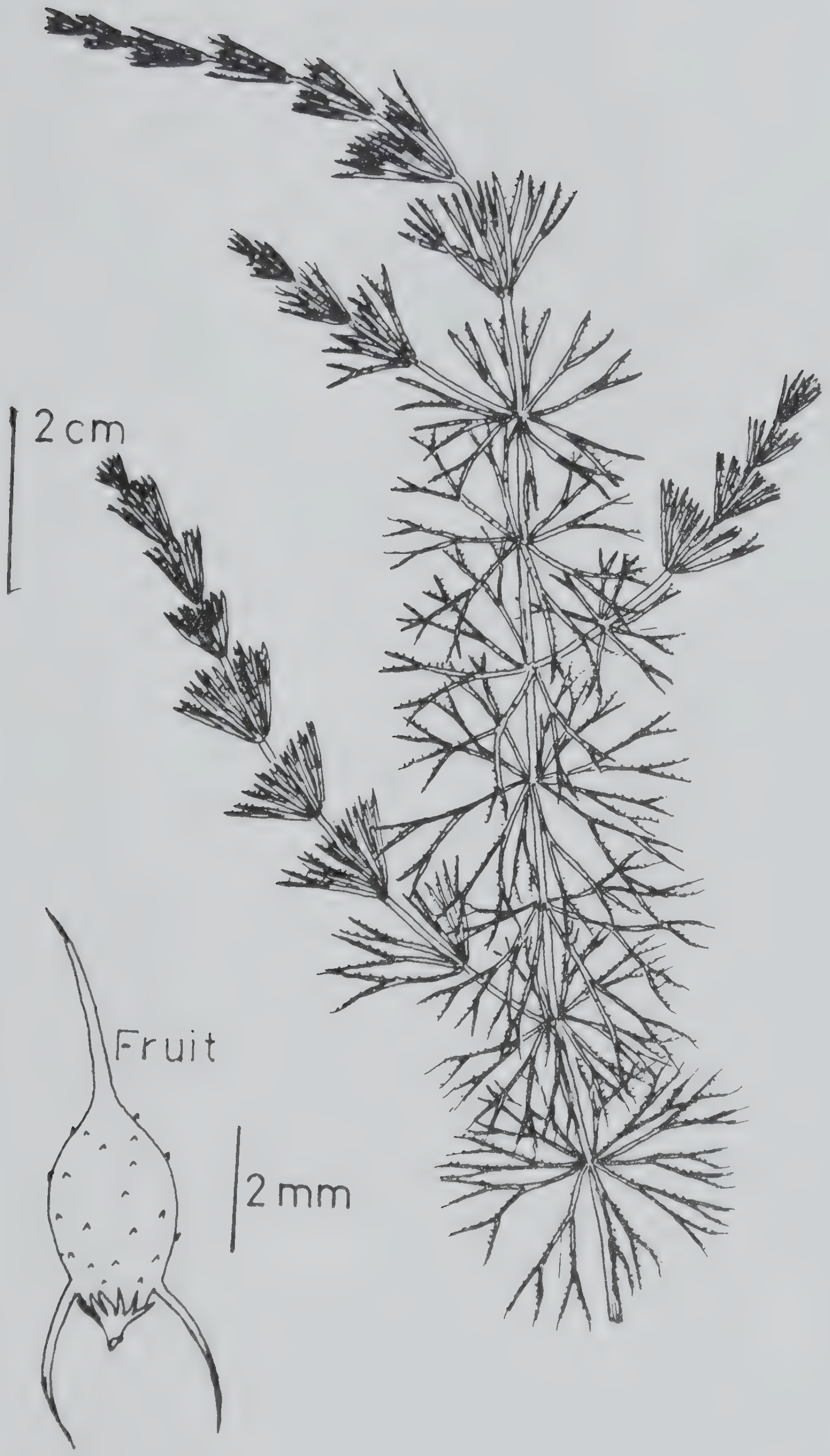


66. CANNABINACEAE

CANNABIS L.

Cannabis sativa L.

Local name	:	Ganja
Characteristics	:	A tall erect herb. Leaves palmately divided into 3 to 8 lobes; lobes lanceolate, acuminate at apex, serrate at margin. Flowers greenish, unisexual, in axillary clusters with male and female flowers on separate plants. Female clusters surrounded by leafy bracts. Fruit an achene.
Habitat	:	Found as an escape in sandy soil near Seetharam Temple.
Fl. & Fr.	:	September to March.
Reference	:	FBI. 5:487; FUGP. 3:124; FD. 329; FNER. 382

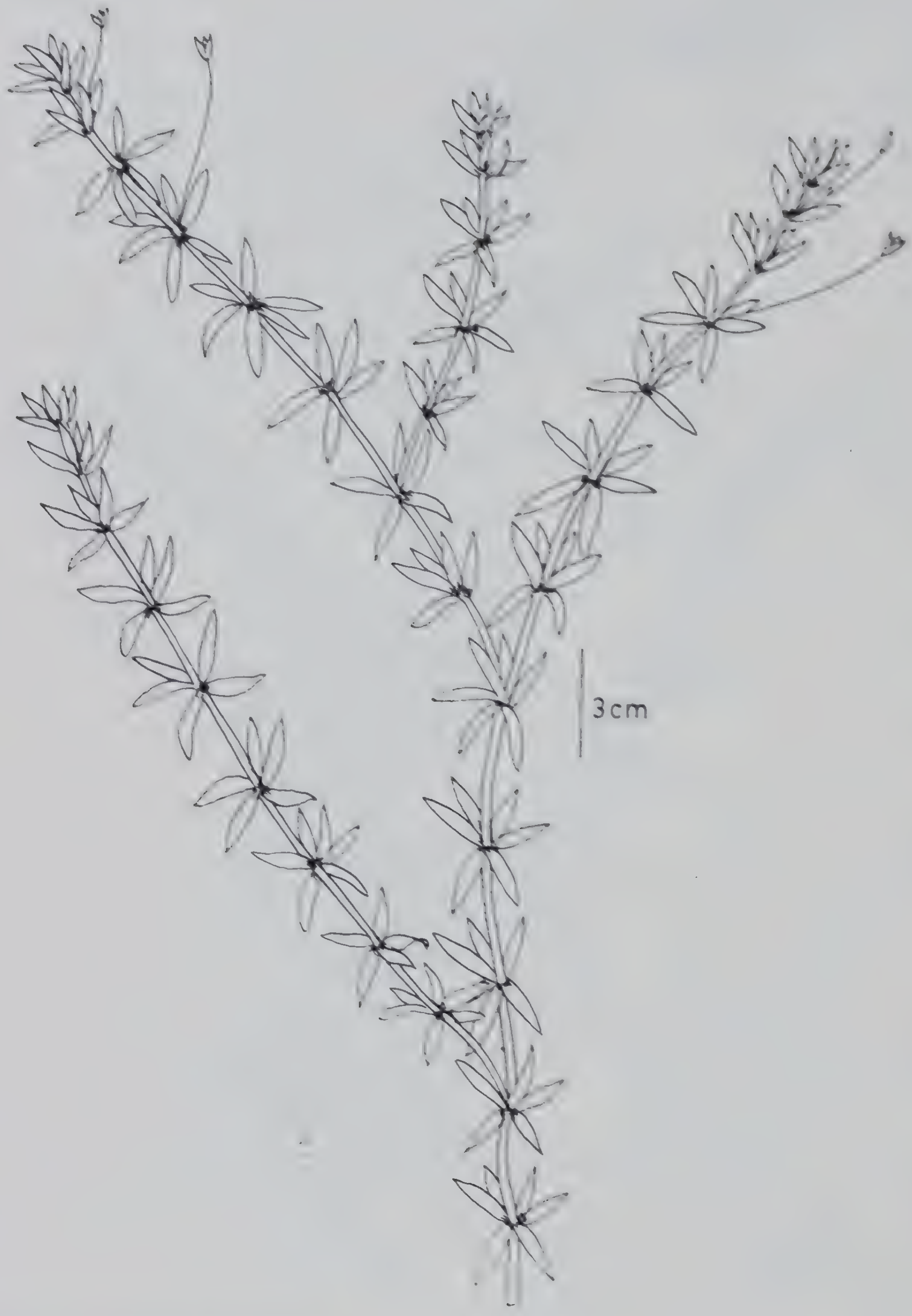


67. CERATOPHYLLACEAE

CERATOPHYLLUM L.

Ceratophyllum demersum L.

Characteristics	:	A freely submerged, slender herb. Leaves arranged in whorls, divided into forked segments; segments serrate. Flowers unisexual, solitary, axillary. Fruits brownish-black, with persistent style and 2 basal spines
Habitat	:	Common in shallow water along with decaying vegetation.
Fl. & Fr.	:	February to May and August to November.
Reference	:	FBI. 5:639; FD. 331; FNER. 387; FTD. 182

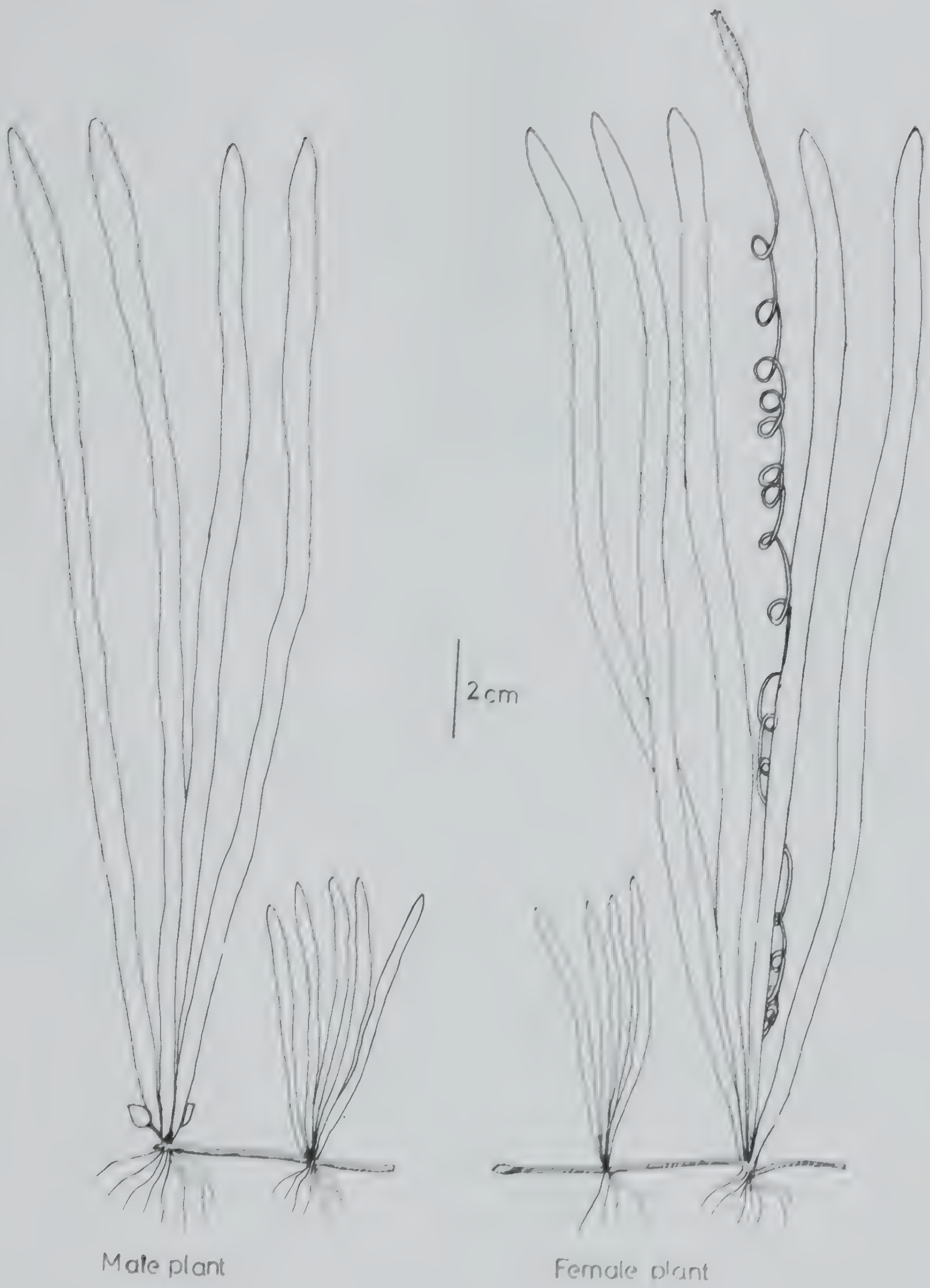


68. HYDROCHARITACEAE

HYDRILLA Rich.

Hydrilla verticillata (L. f.) Royle

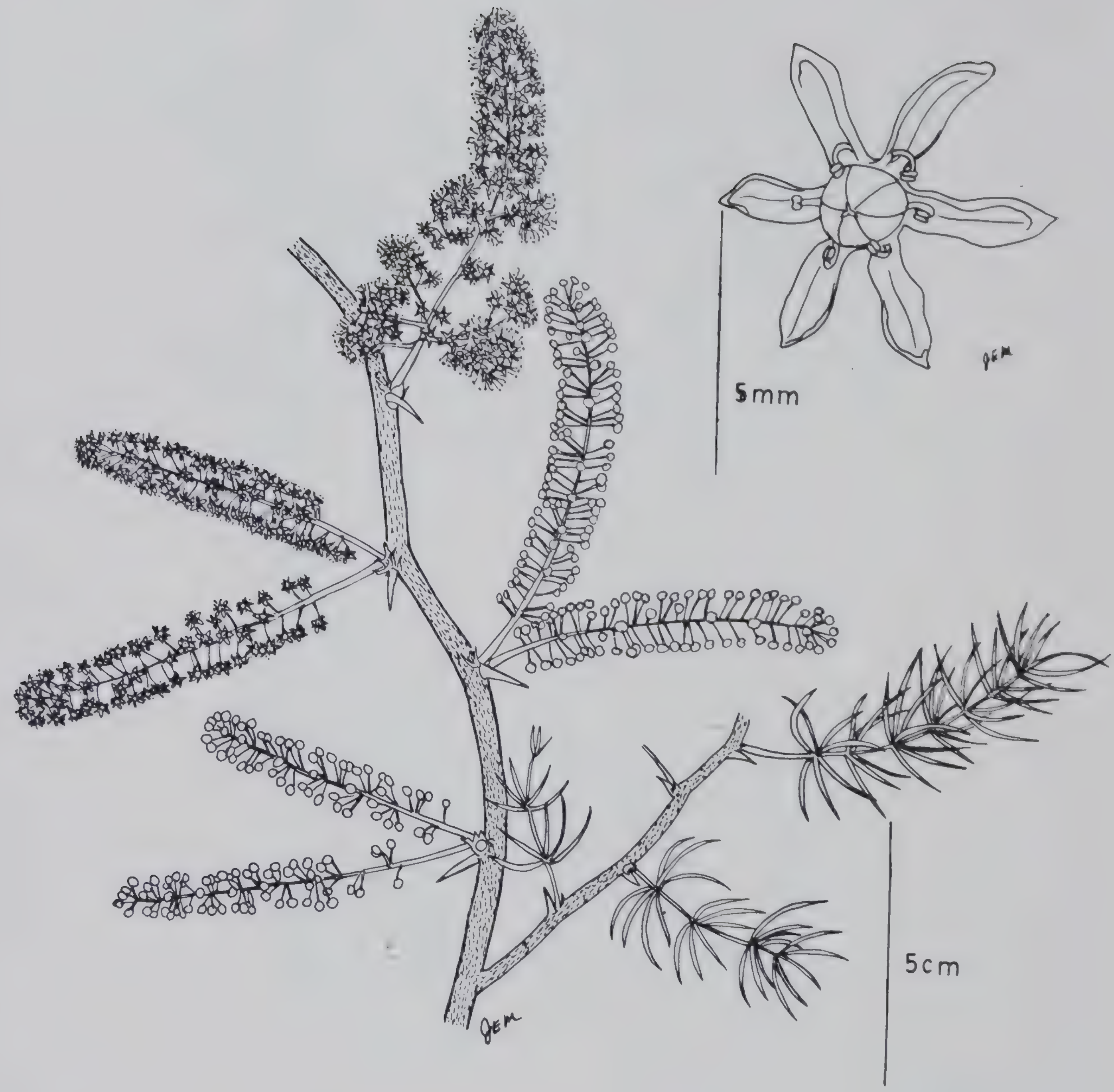
Characteristics	: A submerged, rhizomatous, aquatic herb, developing turions at the tip of rhizomes. Leaves small, linear-oblong, 3 to 8 arranged in a whorl at each node, entire or minutely toothed at margin. Flowers unisexual; male flowers white, pedicellate, floating on water surface; female flowers sessile, in leaf axils. Fruit usually muricate; seeds many.
Habitat	: Abundant in open water areas; forming thick masses; often in association with *Najas* sp.
Fl. & Fr.	: March to May and August to November.
Reference	: FBI. 5:659; FD. 331; FID. 349; FNER. 388



VALLISNERIA L.

Vallisneria natans (Lour.) Hara

Synonym	:	*V. spiralis* L.
Characteristics	:	A submerged, rhizomatous aquatic herb with tufted, long, ribbon-like leaves. Flowers unisexual; male flowers many, enclosed in a spathe, at the base of the plant in leaf axils (at maturity the spathe breaks and male flowers float freely on water surface in large numbers); female flowers solitary, floating on water surface on a very long slender pedicel. Fruit a long capsule, submerged due to coiling of the pedicel. Seeds numerous, fusiform.
Habitat	:	Scattered in shallow open water areas; common in Ghana canal near Chital Van.
Fl. & Fr.	:	October to May.
Reference	:	FBI. 5:660; FUGP. 3:174; FD. 331; FID. 350; FNER. 38 FTN. 1, 3:3



69. LILIACEAE

ASPARAGUS L.

Asparagus racemosus Willd.

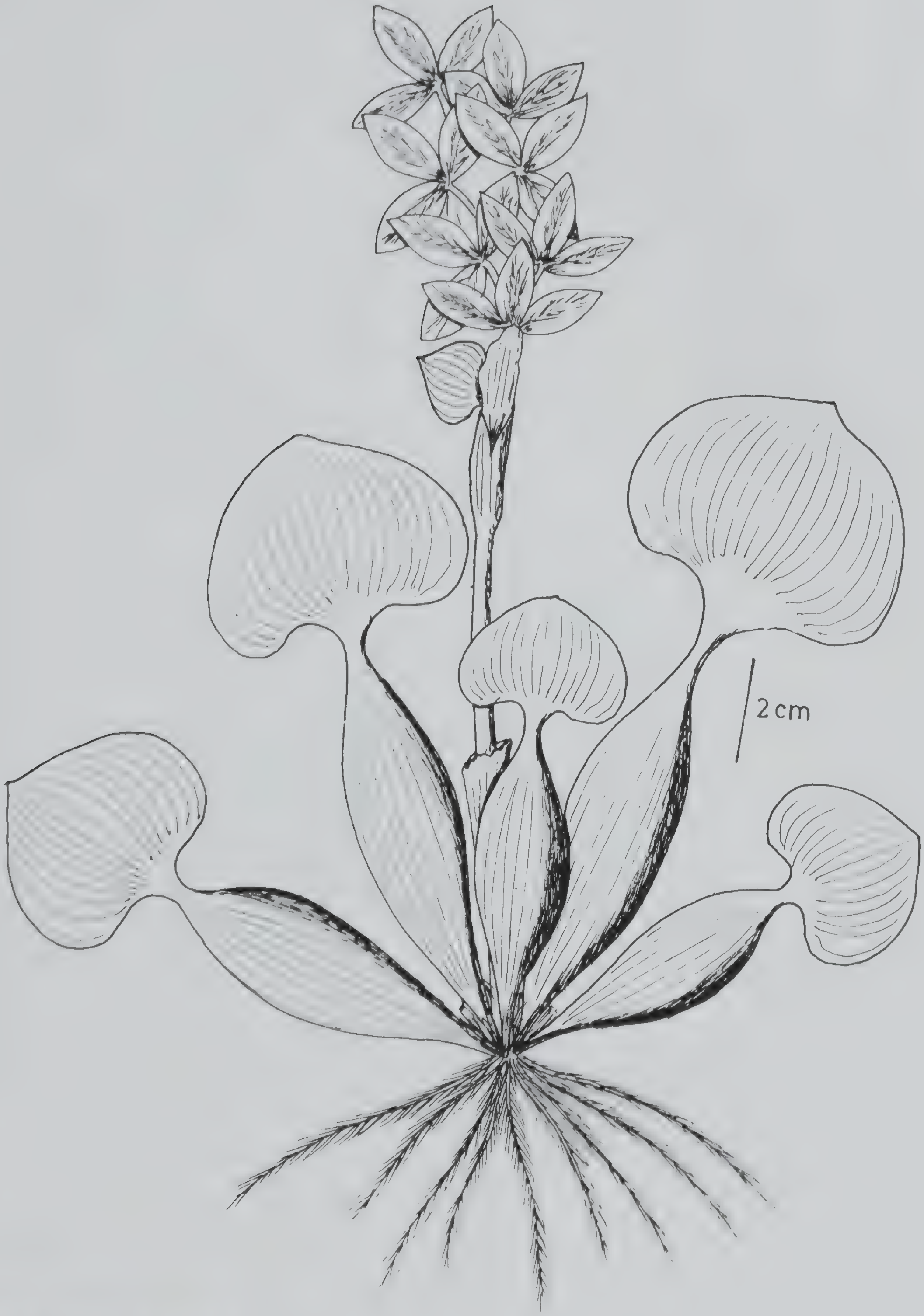
Local name : Satavar

Characteristics : A much-branched straggling or climbing shrub with tuberous roots. Stem with recurved spines. Leaves minute, scale-like, with tufts of 2 to 6 long, pointed cladodes in their axils. Flowers white, arranged in racemes on old stem. Fruit a berry with 3 seeds, red when ripe.

Habitat : Dry, sandy soil; found along roadsides straggling over other shrubs.

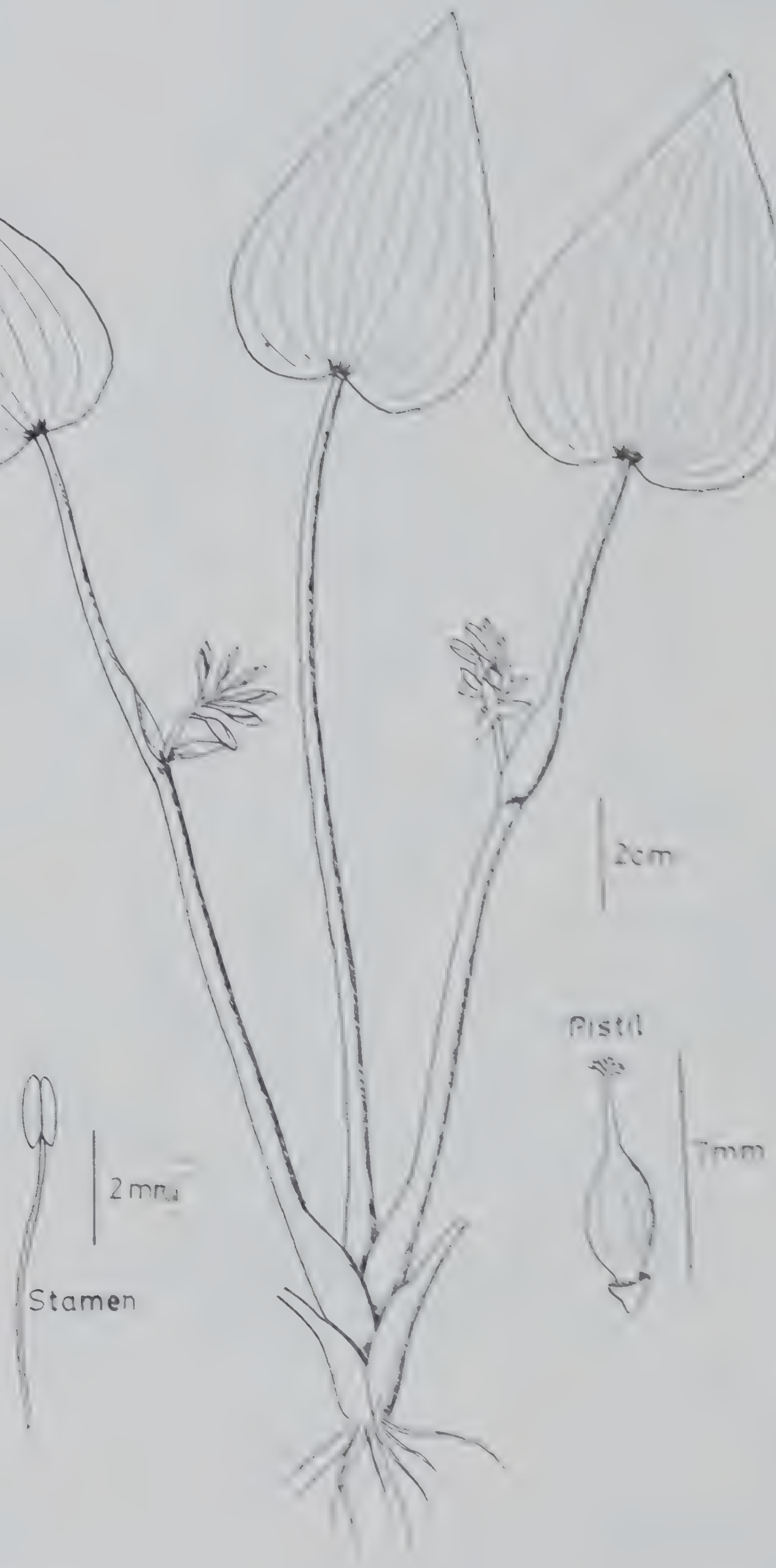
Fl. & Fr. : November to January.

Reference : FBI. 6:316; FUGP. 3:259; FD. 336; FID. 350; FBR. 22



70. PONTEDERIACEAE

EICHHORNIA Kunth
Eichhornia crassipes (Mart.) Solms.
Local name : Jal Kumni, Rukhda
Characteristics : A free floating aquatic herb with a dense mass of submerged roots which keep the buoyancy of the plant. Leaves spathulate; petiole long, swollen and spongy. Flowers violet-blue, showy, many on a peduncle.
Habitat : Found throughout the aquatic area forming large patches.
Fl. & Fr. : Almost throughout the year.
Reference : FD. 338; HFD. 524; FID. 353; FNER. 395



MONOCHORIA Presl.

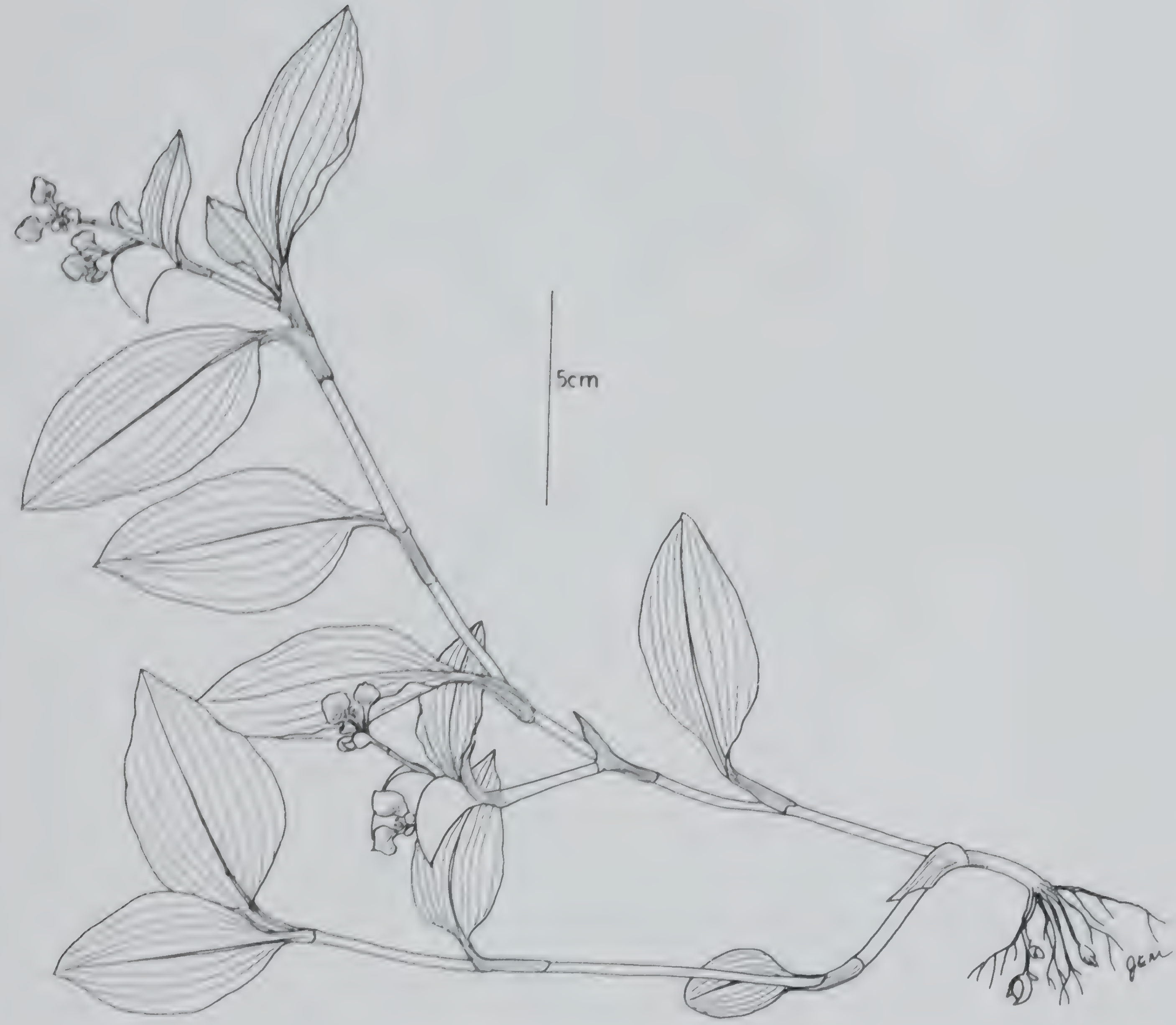
Monochoria vaginalis (Burm. f.) Presl.

Characteristics : An annual or perennial, emergent, aquatic herb. Leaves ovate-lanceolate, acuminate at apex. Flowers lilac-blue, arranged in racemes; sepals and petals 3 each; stamens 6, one shorter than the other 5. Fruit a capsule, up to 1 cm long; seeds many, ribbed.

Habitat : Found in monsoonal pools; not common.

Fl. & Fr. : September to November.

Reference : HFD. 523; FHD. 791



71. COMMELINACEAE

COMMELINA L.

Commelina benghalensis L.

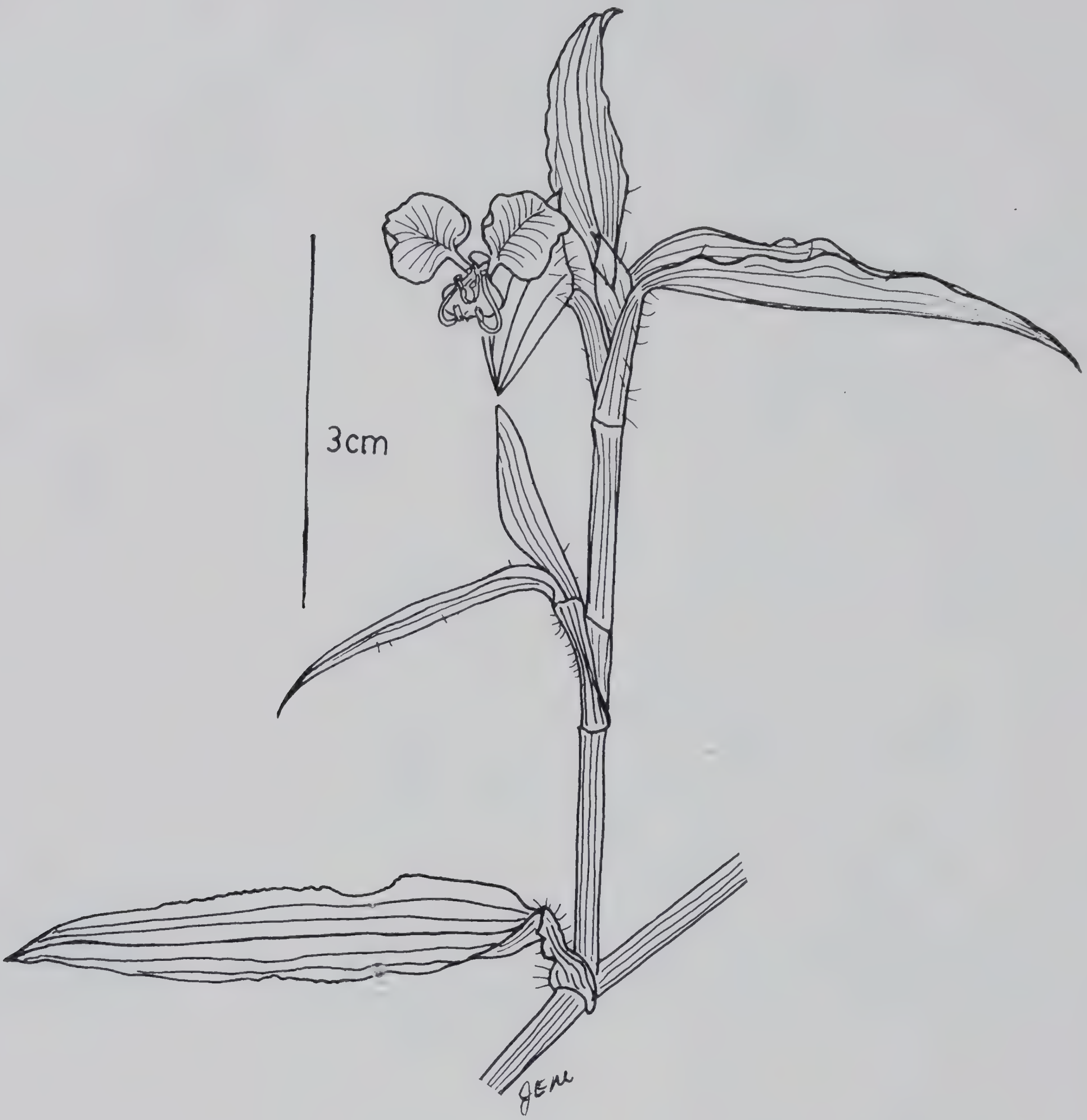
Local name : Kana

Characteristics : A decumbent or ascending herb, branching and rooting from the base. Leaves sessile or with a short petiole, ovate to oblong, 3 to 10 cm long, sheathing at base. Flowers blue, in a cyme subtended by 1 to 3 funnel-shaped, spathe-like bracts. Underground cleistogamous flowers also present. Fruit a 3-valved capsule with 5 pitted seeds.

Habitat : Moist soil; scattered throughout the uplands and along the roadside.

Fl. & Fr. : August to November.

Reference : FBI. 6:370; FD. 340; FID. 126; FBR. 226



Commelina forskalei Vahl

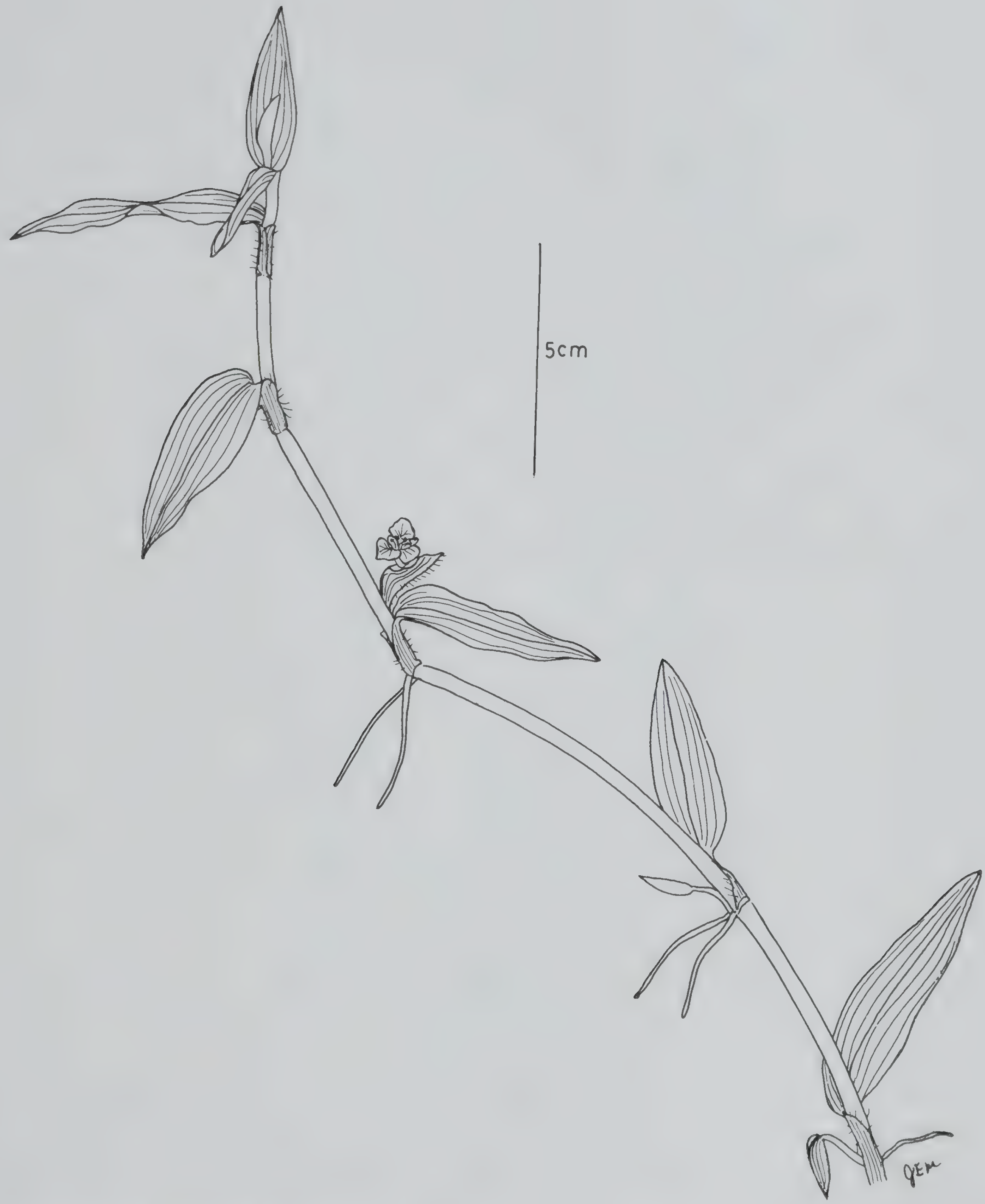
Local name : Kana

Characteristics : A straggling, branched herb, rooting at lower nodes. Leaves linear-oblong, acute at apex; margin wavy. Flowers blue, in 2 to 5-flowered cymes subtended by a spathe-like bract; inner flowers males and outer flowers bisexual. Fruit a 3-chambered capsule, often with a single, orange-brown seed.

Habitat : Moist soil and shallow, water logged areas; not common.

Fl. & Fr. : August to December.

Reference : FBI. 6:371; FD. 340; FID. 126; FTD. 189; FBR. 227



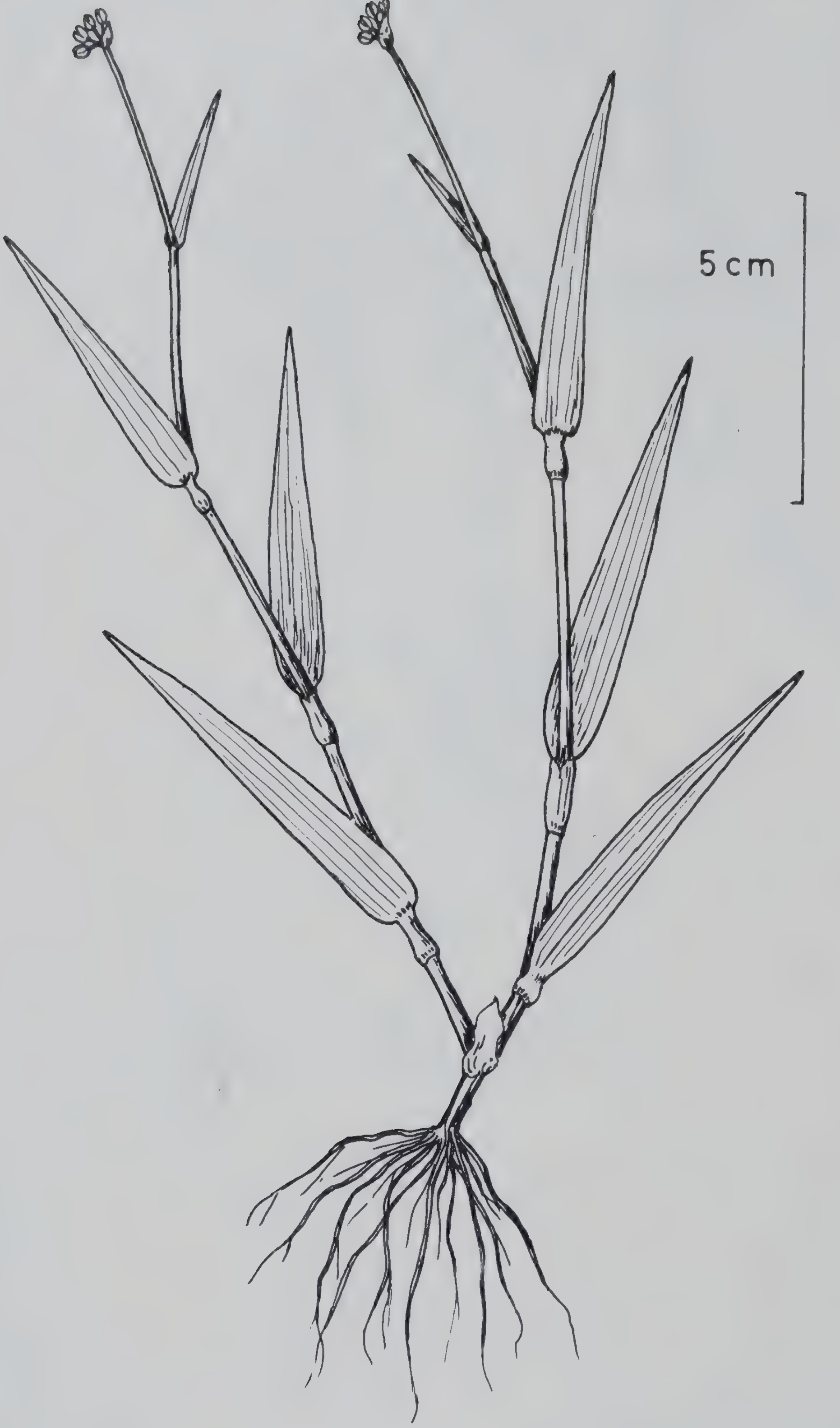
Commelina hasskarlii Clarke

Characteristics : A decumbent or ascending herb with glabrous branches, rooting at lower nodes. Leaves 4 to 10 cm long, lanceolate, acute at apex, scabrous at margin. Flowers dark blue, arranged in axillary cymes subtended by a spathe-like bract; bracts cordate at base. Fruit a glabrous capsule, 0.8 to 1 cm long; seeds smooth.

Habitat : Moist soil and marshy areas; not common.

Fl. & Fr. : September to November.

Reference : FBI. 6:370; FUGP. 3:273; FD. 340; FBR. 227



MURDANNIA Royle

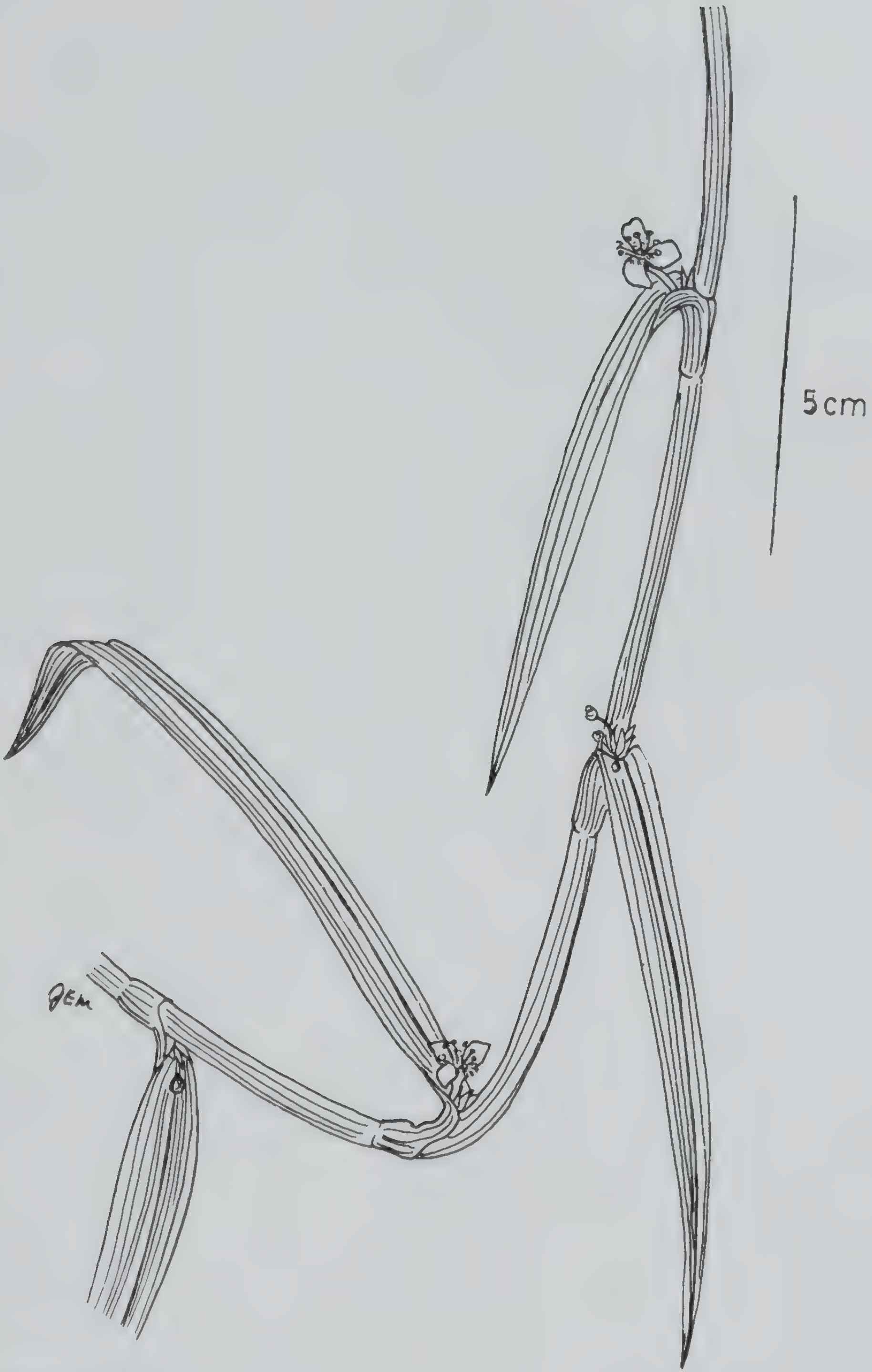
Murdannia nudiflora (L.) Brenan

Characteristics : An erect or decumbent herb, branching from the base. Leaves up to 12 cm long, linear-lanceolate, acute at apex, sheathing at base. Flowers blue, in terminal, cymose panicles. Fruit a mucronate capsule with 3 chambers. Seeds 2 in each chamber, pitted, dark-brown.

Habitat : Moist soil in open or shady areas; not common.

Fl. & Fr. : August to November.

Reference : FBI.6:378; FUGP.3:277; FTD.190; FBR.229



TONNINGIA Necker ex Juss.

Tonningia axillaris (L.) Kuntze

Synonyms : *Amischophacelus axillaris* (L.) Rolla Rao & Kammathy
Cyanotis axillaris Schult.

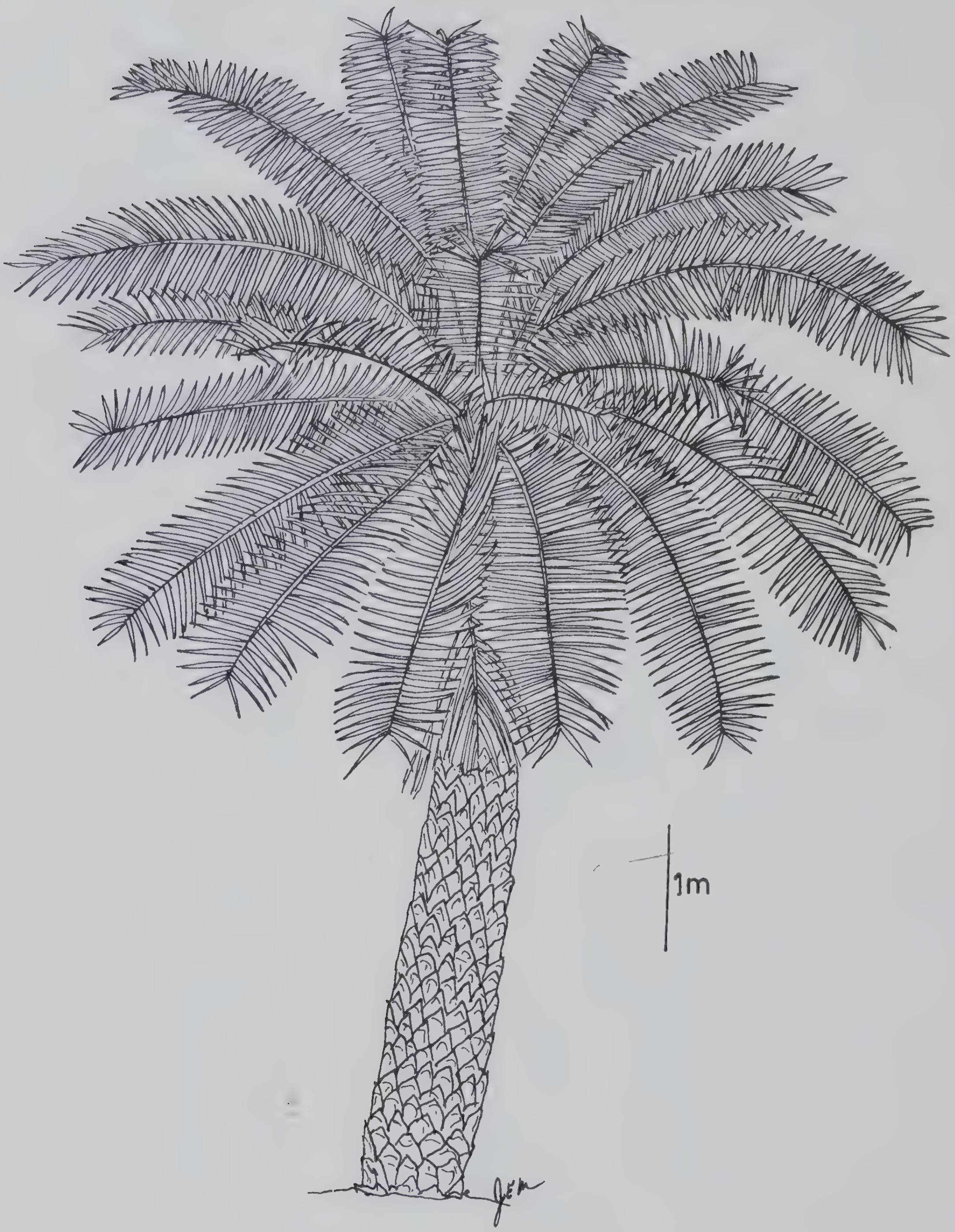
Local name : Kana

Characteristics : A decumbent or ascending herb with glabrous, fleshy stem which root at lower nodes. Leaves sessile, up to 8 cm long, linear-lanceolate, with sparsely hairy sheath. Flowers blue-purple, in axillary fascicles arising from leaf sheath. Fruit a capsule, up to 7 mm long, 3-parted, with hairy beaks. Seeds glossy, dark brown.

Habitat : Moist soil and marshy area.

Fl. & Fr. : August to November.

Reference : FBI. 6:388; FUGP. 3:280; FD. 340; FBR. 225; FTN. 1, 3:50



72. ARECACEAE (PALMAE)

PHOENIX L.

Phoenix sylvestris (L.) Roxb.

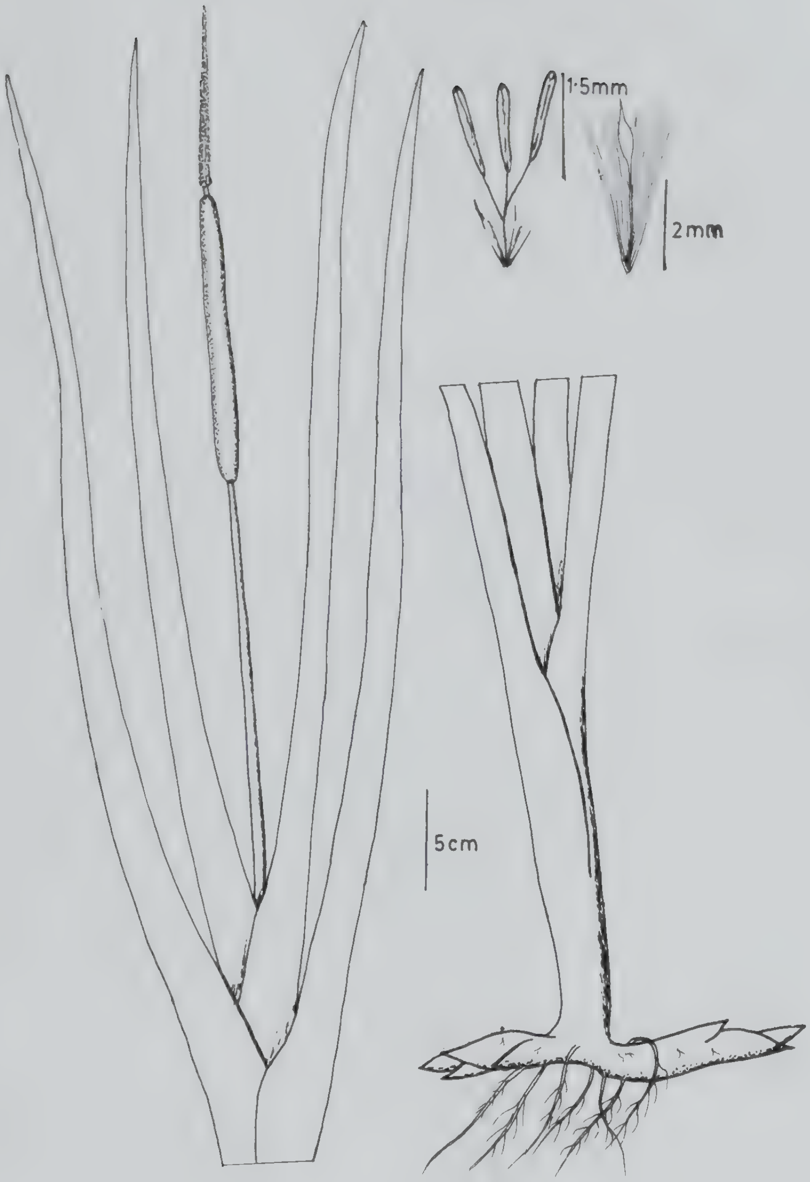
Local name : Khajur

Characteristics : An unbranched palm with persistent leaf bases on the trunk. Leaves pinnately compound with spine-tipped leaflets. Stout spines present at the base of the rachis. Inflorescence a spadix with unisexual flowers. Fruit oblong-ellipsoid, orange yellow.

Habitat : Along roadsides.

Fl. : February to April; Fr. : April to July.

Reference : FBI. 6:425; FUGP. 3:286; FD. 343; FBR. 229



73. TYPHACEAE

TYPHA L.

Typha angustata Bory & Chaub.

Synonym : *T. angustifolia* auct. non L.

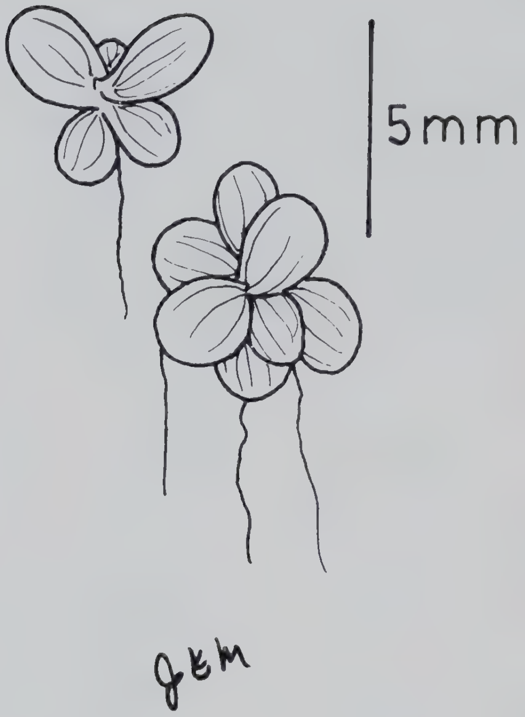
Local name : Patera

Characteristics : A tall, perennial, aquatic with creeping rhizome, up to 3.5 m high. Leaves long, flat but semi-cylindric above the sheath, exceeding the flowering stem. Inflorescence a cylindrical, 15 to 25 cm long spike with male and female flowers separated by a distinct gap; perianth reduced to many capillary hairs. Seeds very small, dispersed through wind due to the presence of capillary hairs.

Habitat : Scattered in shallow water areas forming large patches; also found in dried up marshy area.

Fl. & Fr. : May to November.

Reference : FBI. 6:489; FUGP. 3:293; FD. 344; FNER. 403; FTD. 191



74. LEMNACEAE

LEMNA L.

Lemna perpusilla Torrey

Synonym : *L. paucicostata* Hegelm

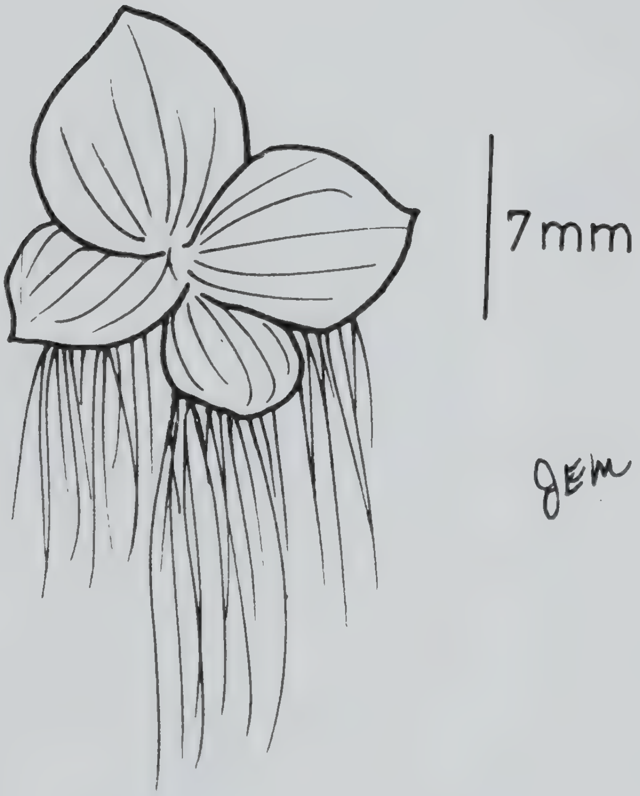
Local name : Chotti kaye

Characteristics : A minute, free floating plant with flat leaf-like fronds. Fronds light green, 2 to 3 mm long, ovate-oblong, with a single root from the lower surface. The plant propagates by vegetative budding.

Habitat : Very common in open water areas, especially after rainy season.

Fl. & Fr. : Not seen.

Reference : FBI. 6:556; FUGP. 3:305; FD. 347; FID. 360; FTD. 193



SPIRODELA Schleid.

Spirodela polyrhiza (L.) Schleid.

Synonym : *Lemna polyrhiza* L.

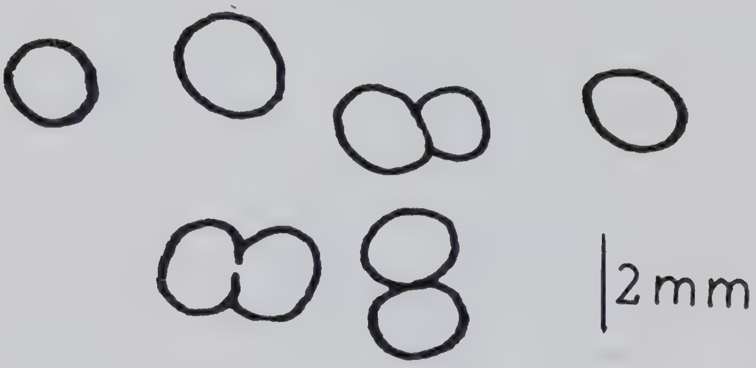
Local name : Kaye

Characteristics : A very small, free floating plant with leaf-like fronds. Fronds 3 to 10 mm long and 2 to 7 mm wide, ovate or obovate, flat and green above, convex and purplish beneath. Roots 3 to 16. Inflorescence minute, with 2 female flowers and 1 male flower. The plant propagates by vegetative budding.

Habitat : Abundant in aquatic areas along with *Azolla pinnata* and *Wolffia globosa*.

Fl. & Fr. : After rainy season.

Reference : FBI. 6:557; FUGP. 3:305; FD. 346; FID. 360



WOLFFIA Horkel

Wolffia globosa (Roxb.) Hartog & Plas

Synonym : *W. arrhiza* auct. non Horkel ex Wimmer

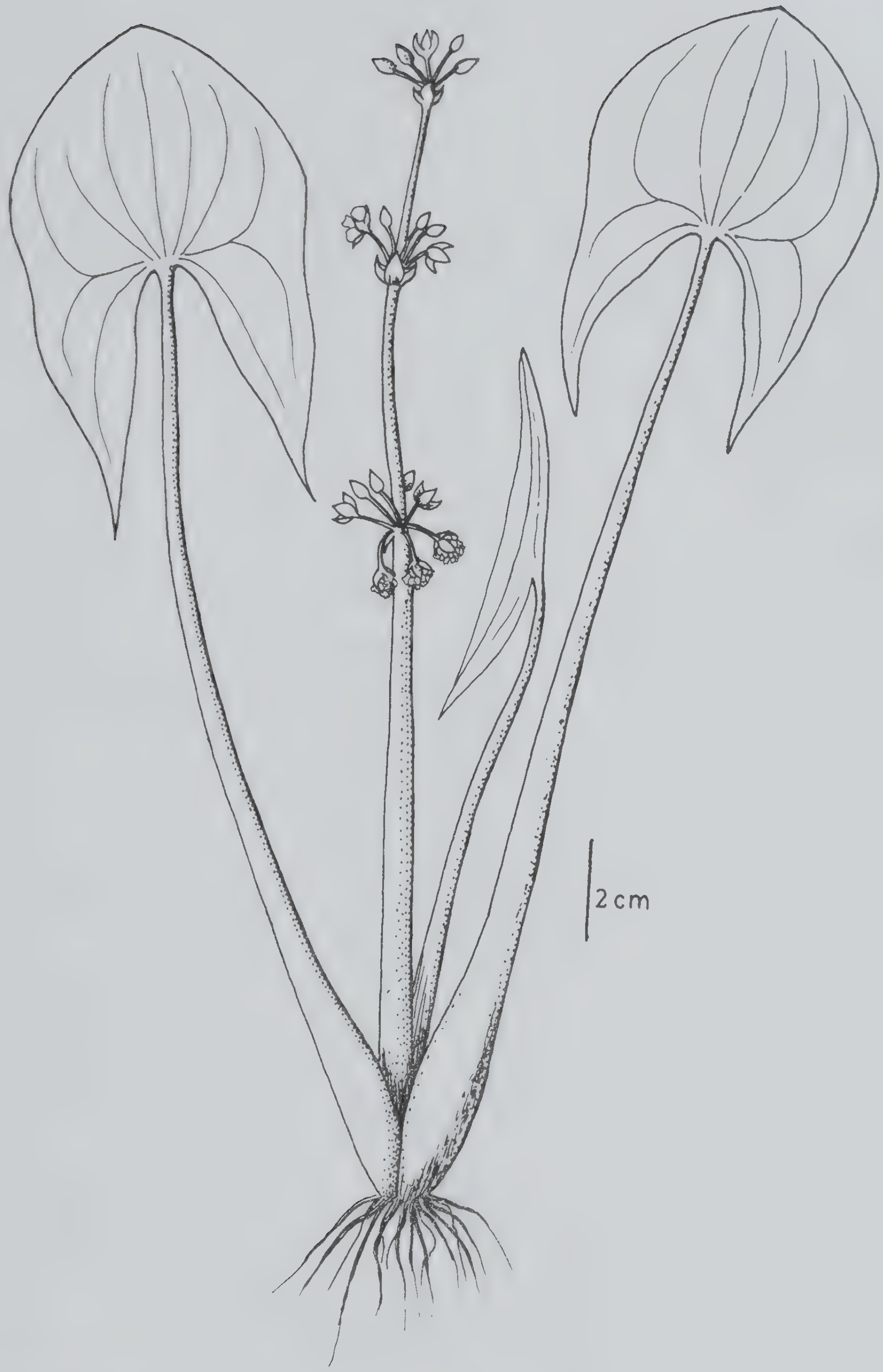
Characteristics : A minute grain-like, free floating plant. Fronds light green, globular or ellipsoid, less than 1 mm across; roots absent.

Habitat : Very common in aquatic areas along with *Spirodela polyrhiza.*

Fl. & Fr. : Not seen.

Reference : FBI. 6:306; FUGP. 306; FHD. 791; FID. 361

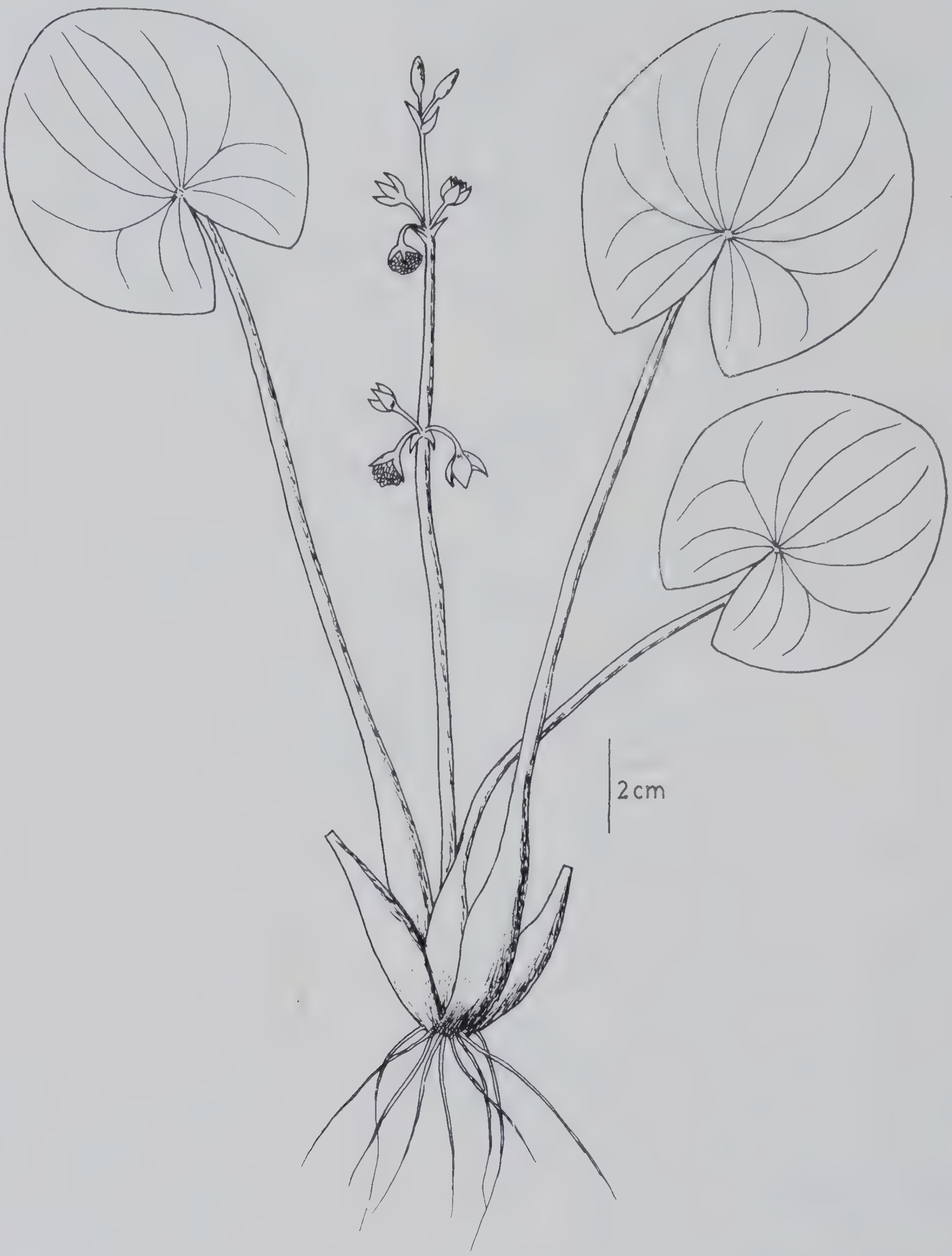
Note : The genus *Wolffia* represents the smallest flowering plants of the world.



75. ALISMATACEAE

LIMNOPHYTON Miq.
Limnophyton obtusifolium (L.) Miq.

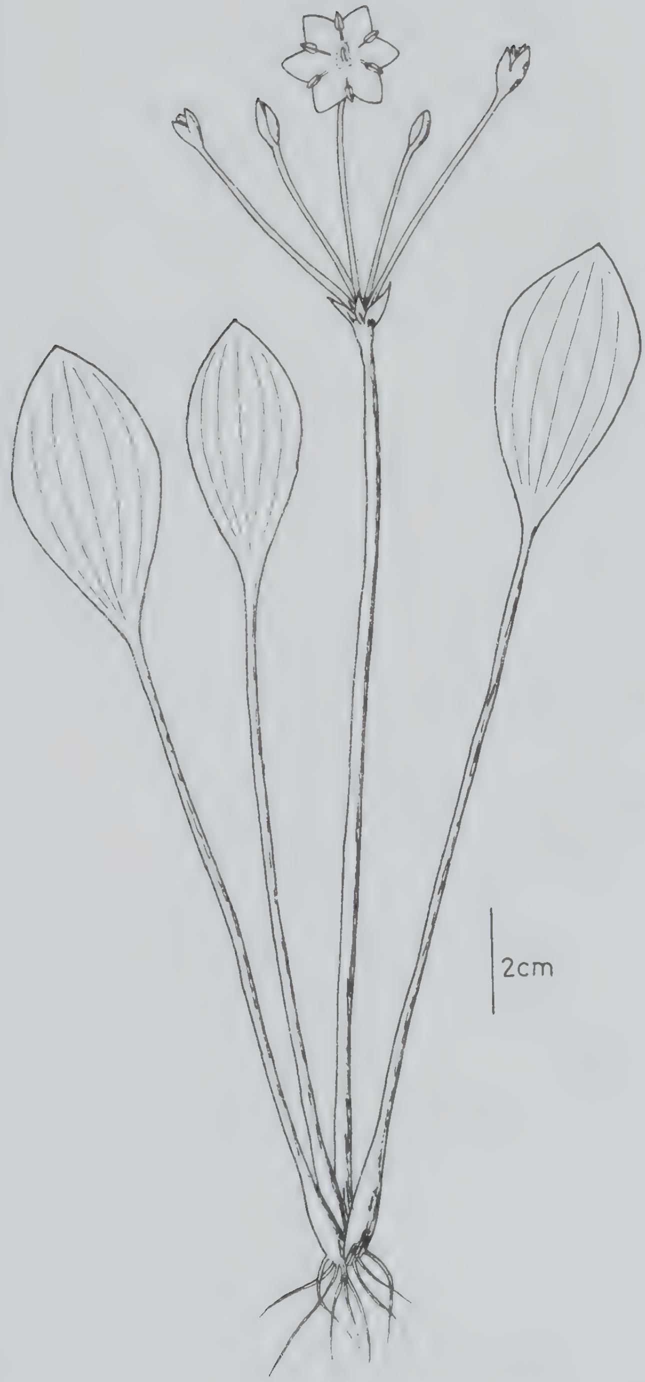
Characteristics	:	An emergent aquatic herb, up to 90 cm high. Leaves from the base, sagittate, rounded at apex; petioles long, can be up to 90 cm. Flowers white, arranged in whorls on a peduncle arising from the base of the plant; lower flowers bisexual, larger than upper male flowers. Fruit an achene with fleshy epicarp, numerous.
Habitat	:	Common in shallow open water, along the margin of aquatic area and in monsoonal pools.
Fl. & Fr.	:	September to May.
Reference	:	FBI. 6:560; FHD. 631



SAGITTARIA L.

Sagittaria guayanensis H. B. & K.

Characteristics	:	An aquatic herb with floating leaves. Leaves broadly ovate, deep cordate at base, rounded at apex; petioles very long. Flowers white, arranged in 2 to 4 whorls on a very long peduncle arising from the base, with bisexual flowers below and male flowers in upper whorls. Fruit a flat achene, numerous; wing prominently toothed.
Habitat	:	Found in shallow open water areas; usually in association with *Nymphoides cristata*.
Fl. & Fr.	:	September to January.
Reference	:	FBI. 6:561; FD. 347; FNER. 403; FTD. 194

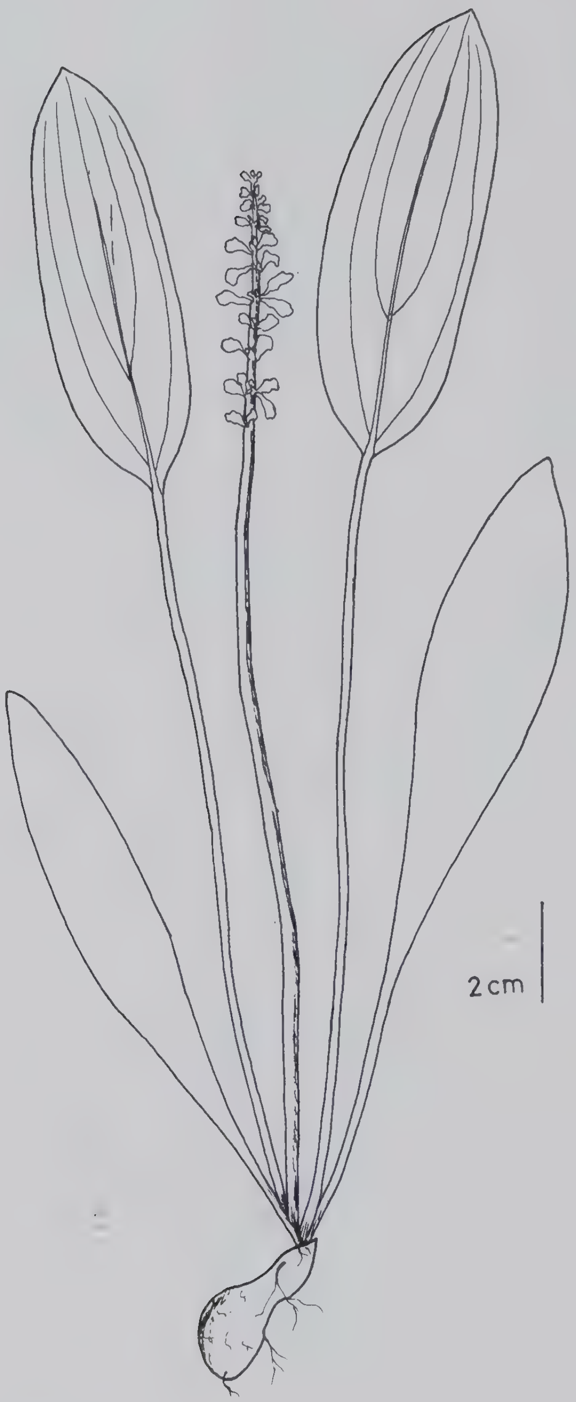


76. BUTOMACEAE

BUTOMOPSIS Kunth

Butomopsis latifolia (D. Don) Kunth

Synonyms	:	*Tenagocharis latifolia* (D. Don) Buchen *Butomopsis lanceolata* (Roxb.) Kunth
Characteristics	:	A marshy herb with radical leaves. Leaves oblanceolate, mucronate at tip; long petioled. Flowers white, in a long-peduncled, many-flowered umbel; petals membranous, deciduous. Fruits membranous follicles, shortly beaked. Seeds minute, elliptic, shining brown.
Habitat	:	Marshy area; rare.
Reference	:	FBI. 6:562; AA. 88; Enu. Fl. Pl. Nepal 1:94.1978



77. APONOGETONACEAE

APONOGETON L. f.

Aponogeton natans (L.) Engl. & Krause

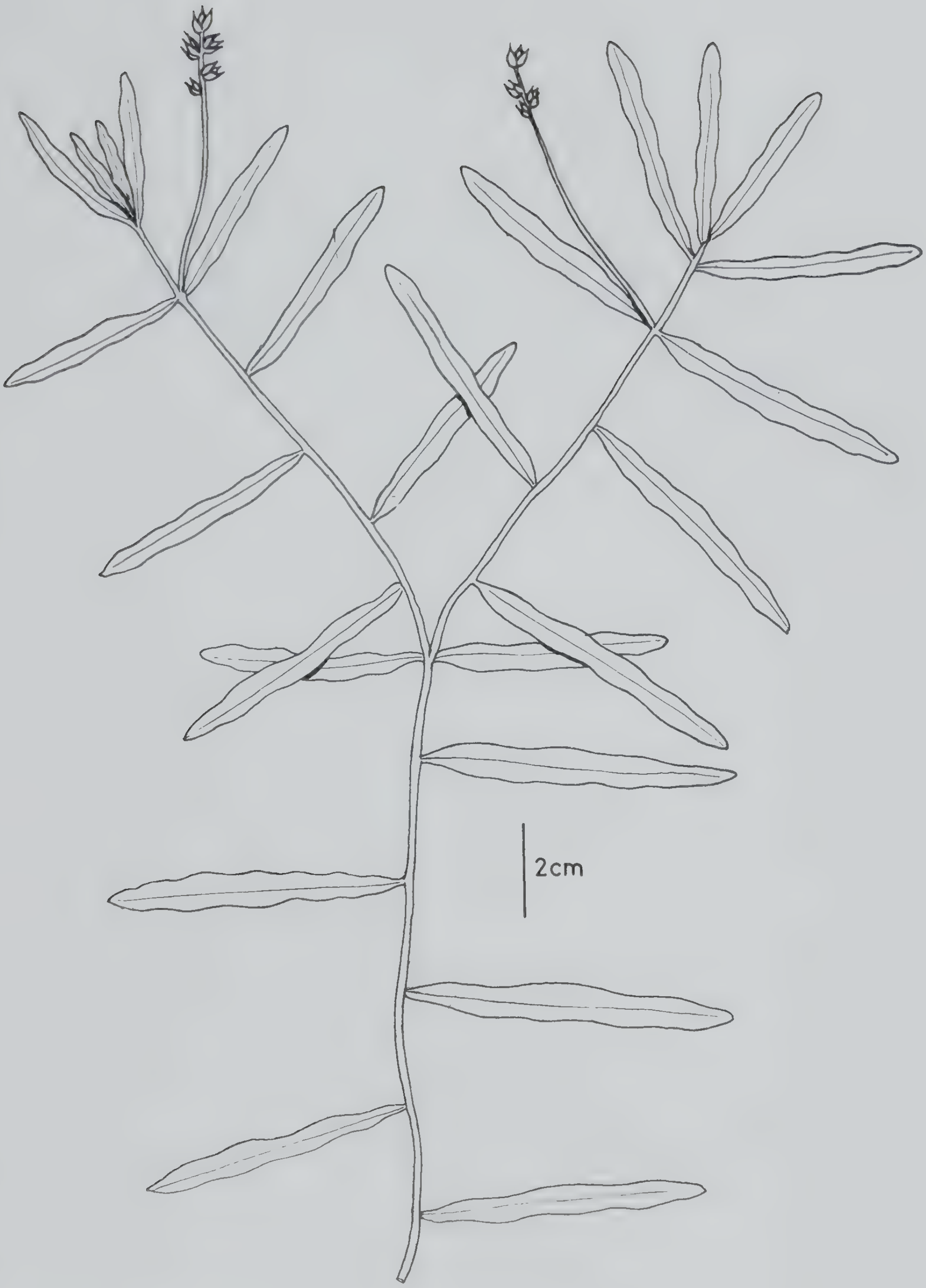
Synonym : *A. monostachyon* L.

Characteristics : An aquatic herb with floating leaves and tuberous rhizome. Leaves 7 to 15 cm long, oblong to linear-oblong. Flowers white, arranged on a dense spike with long peduncle, arising from the base; stamens 6; pistils 3. Fruit comprised of 3 united follicles.

Habitat : Found only in shallow monsoonal pools; common after rain in the monsoonal pools of Koladhar area.

Fl. & Fr. : August to November.

Reference : FBI. 6:564; FUGP. 3:313; FD. 348; FTD. 194

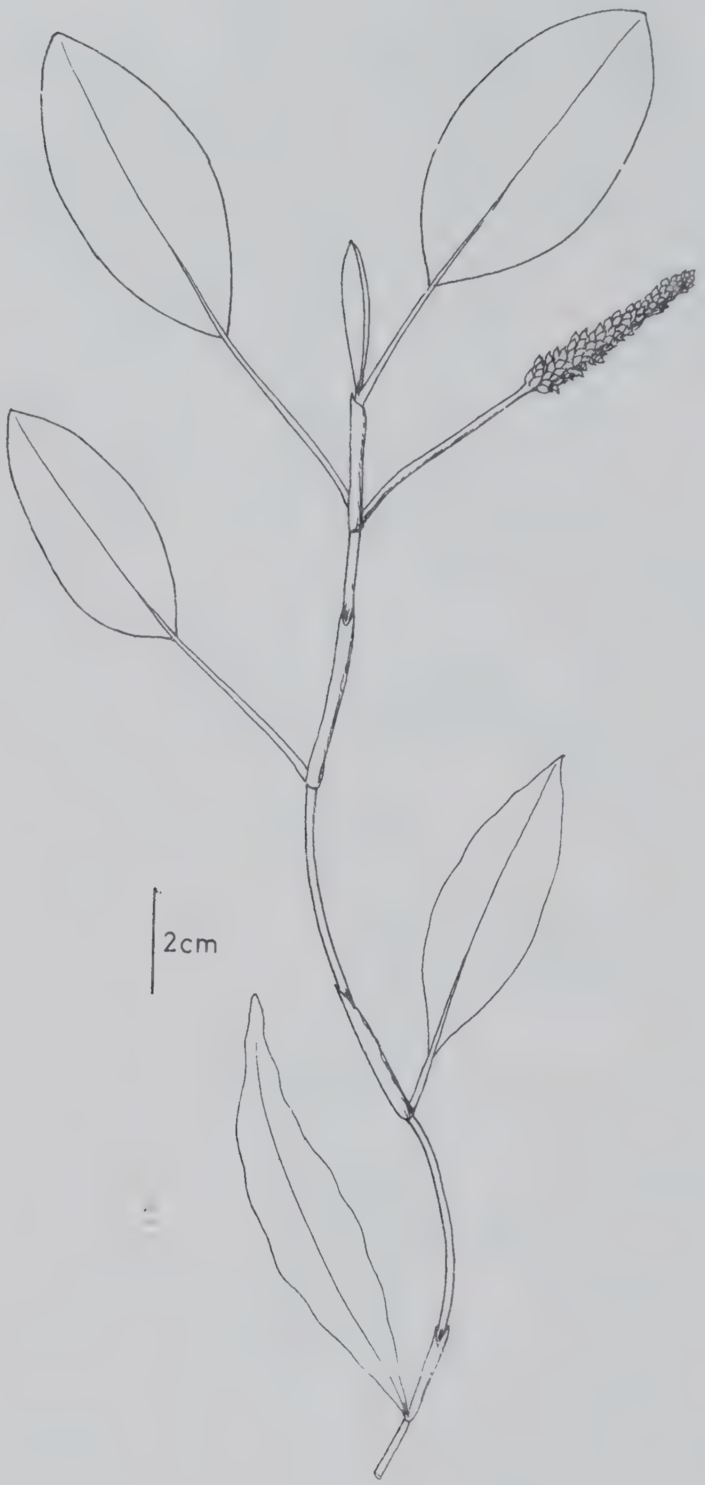


78. POTAMOGETONACEAE

POTAMOGETON L.

Potamogeton crispus L.

Characteristics	:	A submerged brownish or green aquatic herb with creeping rhizome. Leaves sessile, 2.5 to 8 cm long, 0.4 to 1 cm wide, linear or linear oblong, with crisped margin. Inflorescence an axillary, aerial spike. Flowers few bisexual; tepals clawed. Fruit oblique-ovoid, with curved beak.
Habitat	:	Common in open water areas during late winter season.
Fl. & Fr.	:	February to April.
Reference	:	FBI. 6:566; FUGP. 3:315; FD. 349; FID. 361; FBR. 231



Potamogeton nodosus Poir.

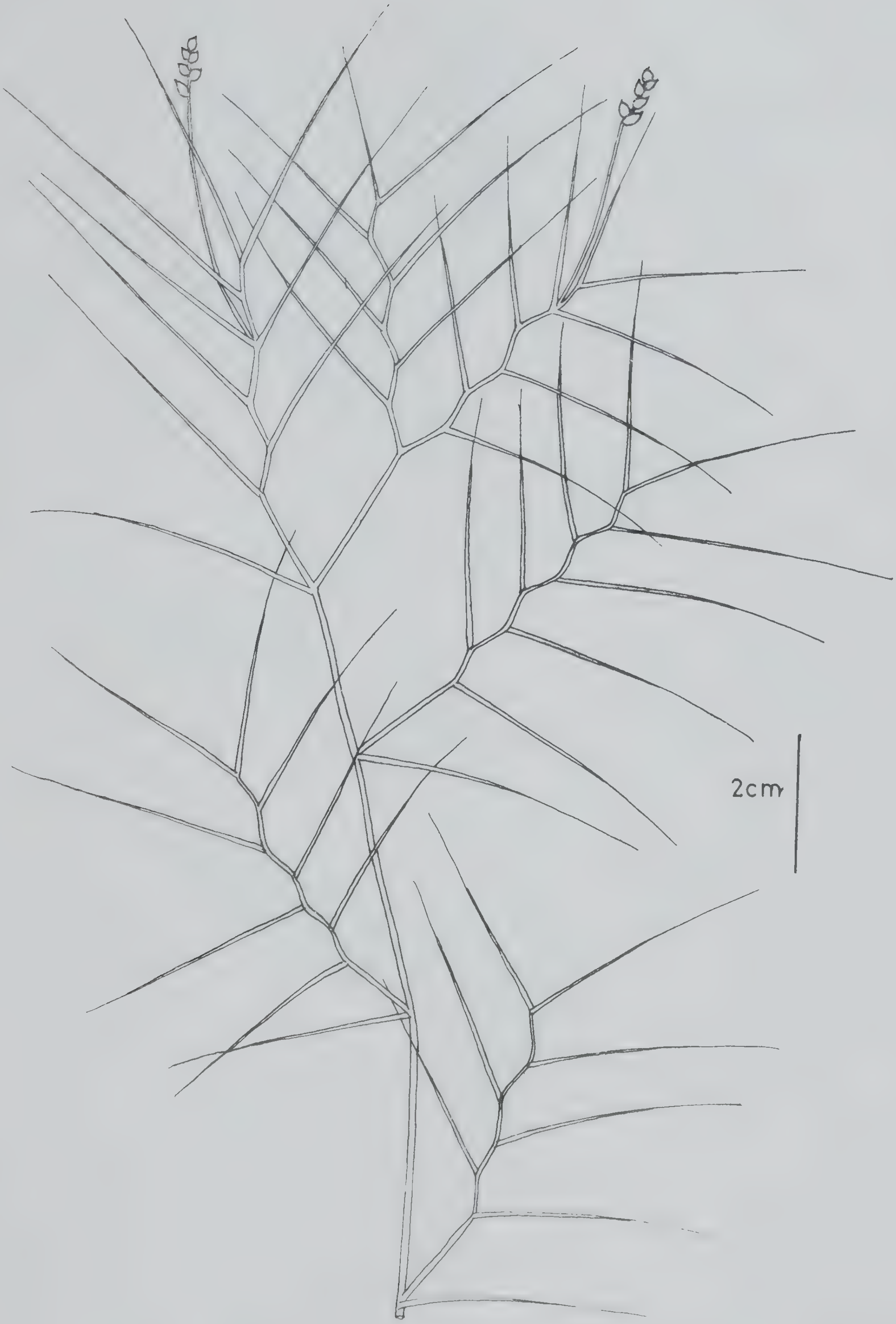
Synonym : *P. indicus* Roxb.

Characteristics : An aquatic perennial with creeping rhizome. Lower leaves submerged, sessile or subsessile, translucent, lanceolate. Upper leaves floating, with 3 to 8 cm long petiole, thick, 5 to 10 cm long, elliptic, elliptic-lanceolate or oblong. Inflorescence a 3 to 7 cm long spike; perianth greenish or brown, clawed. Fruit obliquely obovoid, slightly beaked, 3-ribbed on back.

Habitat : Frequently seen in open water areas.

Fl. : September to January; Fr. : March to May.

Reference : FBI. 6:656; FD. 348; FID. 364; FBR. 231



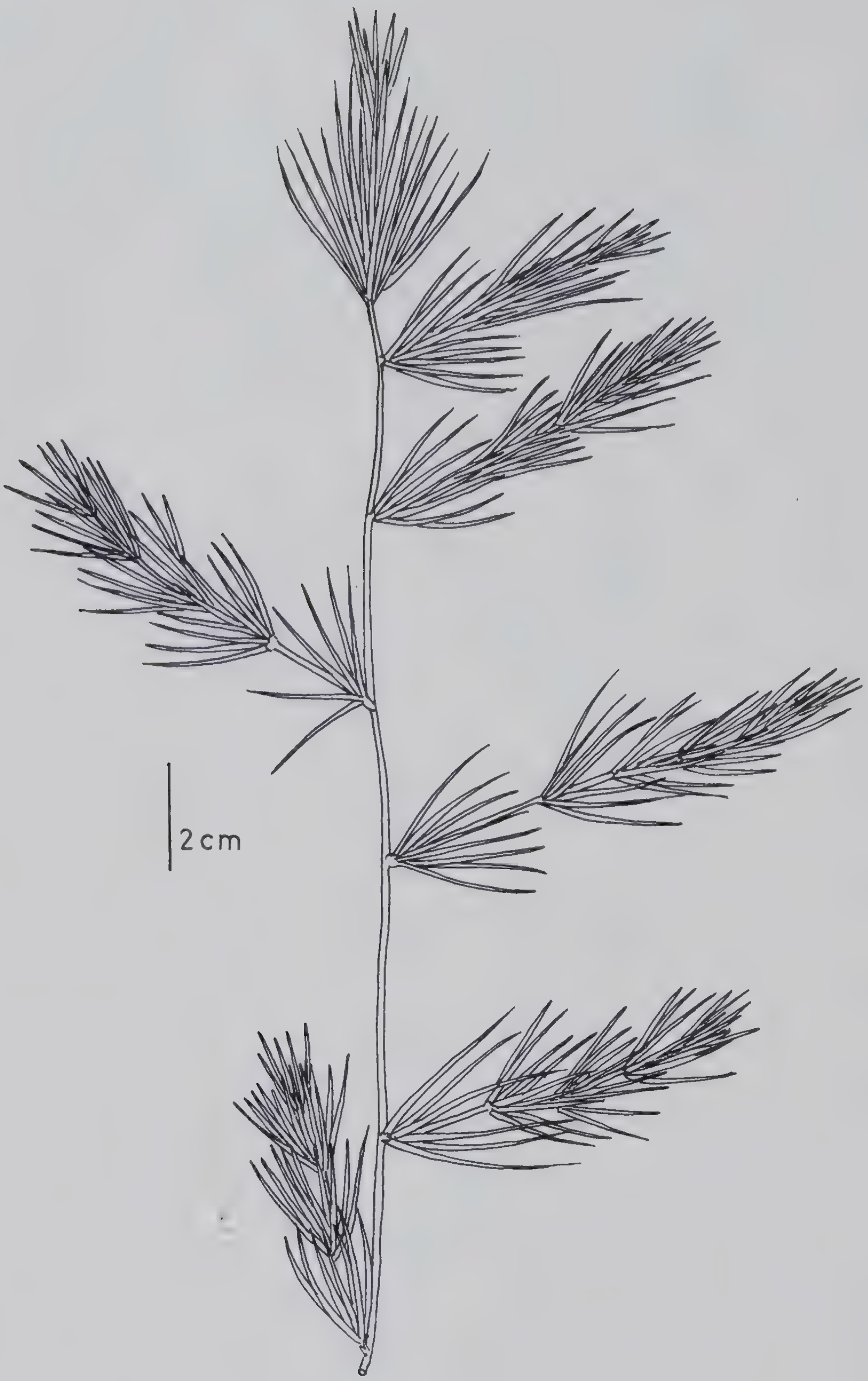
Potamogeton pectinatus L.

Characteristics : A submerged, dichotomously branched, brownish, aquatic herb. Leaves filiform, 3 to 15 cm long and 1 to 2 mm wide; stipules long sheathing at base. Inflorescence an interrupted brown spike with few flowers arranged in whorls. Fruits oblique, slightly keeled, with a short beak.

Habitat : Open water areas; rare in the park.

Fl. & Fr. : September to February.

Reference : FBI. 6:567; FUGP. 3:315; FD. 349; FID. 362; FTD. 195; FBR. 231

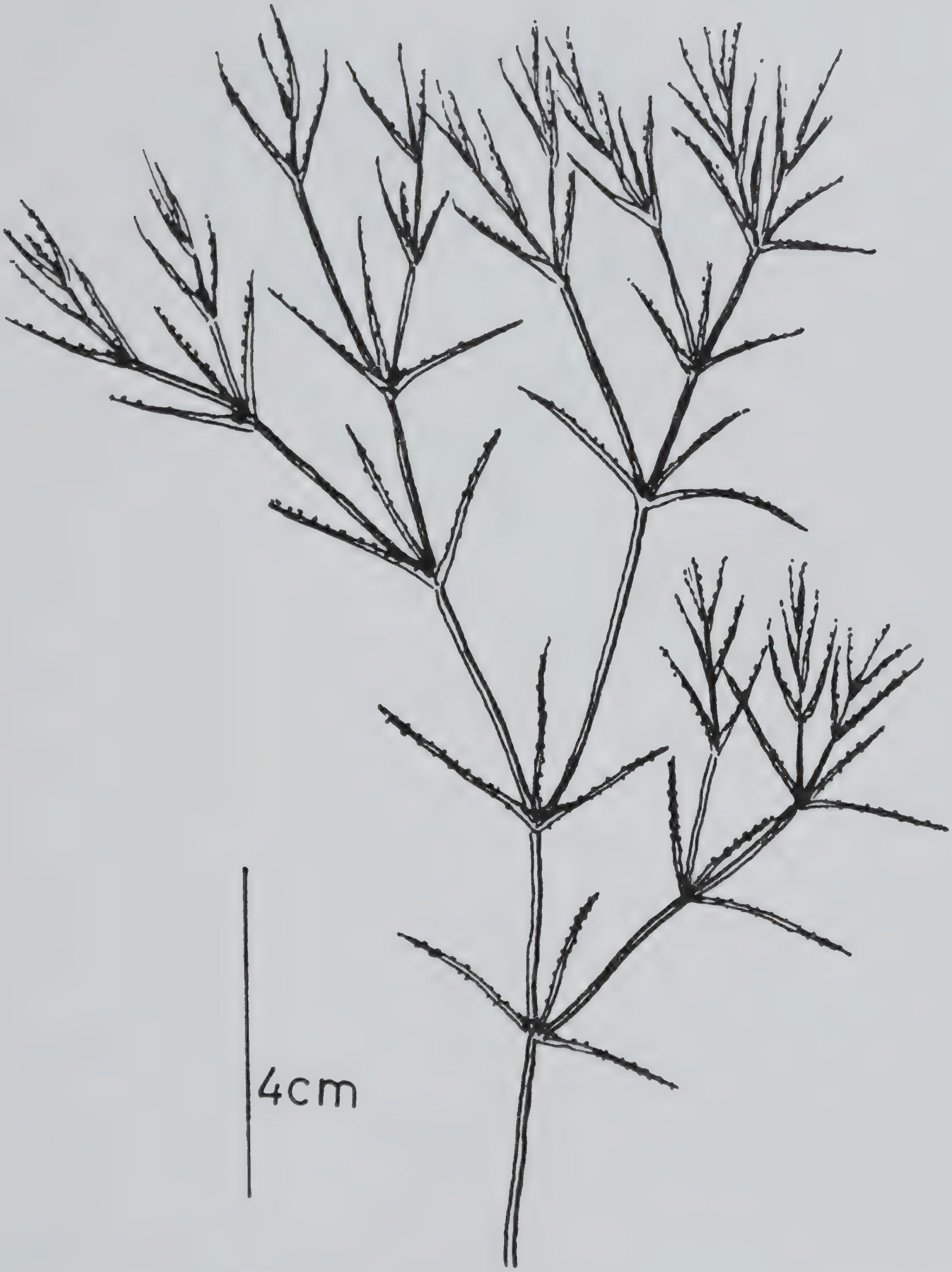


79. NAJADACEAE

NAJAS L.

Najas graminea Del.

Characteristics	:	A slender, submerged aquatic herb, rooting from the base and lower nodes. Lateral branches very close, with crowded leaves, thereby giving a plumose appearance to the plant. Leaves narrowly linear, in pseudowhorls, obtuse or acute at apex; margin entire; leaf sheath auriculate, with small teeth on both edges. Fruits ellipsoid, oblong, slightly narrow and acute at apex.
Habitat	:	Open water areas; often in association with *Hydrilla verticillata*.
Fl. & Fr.	:	March to May and August to November.
Reference	:	FBI. 6:569; FID. 359; FNER. 404



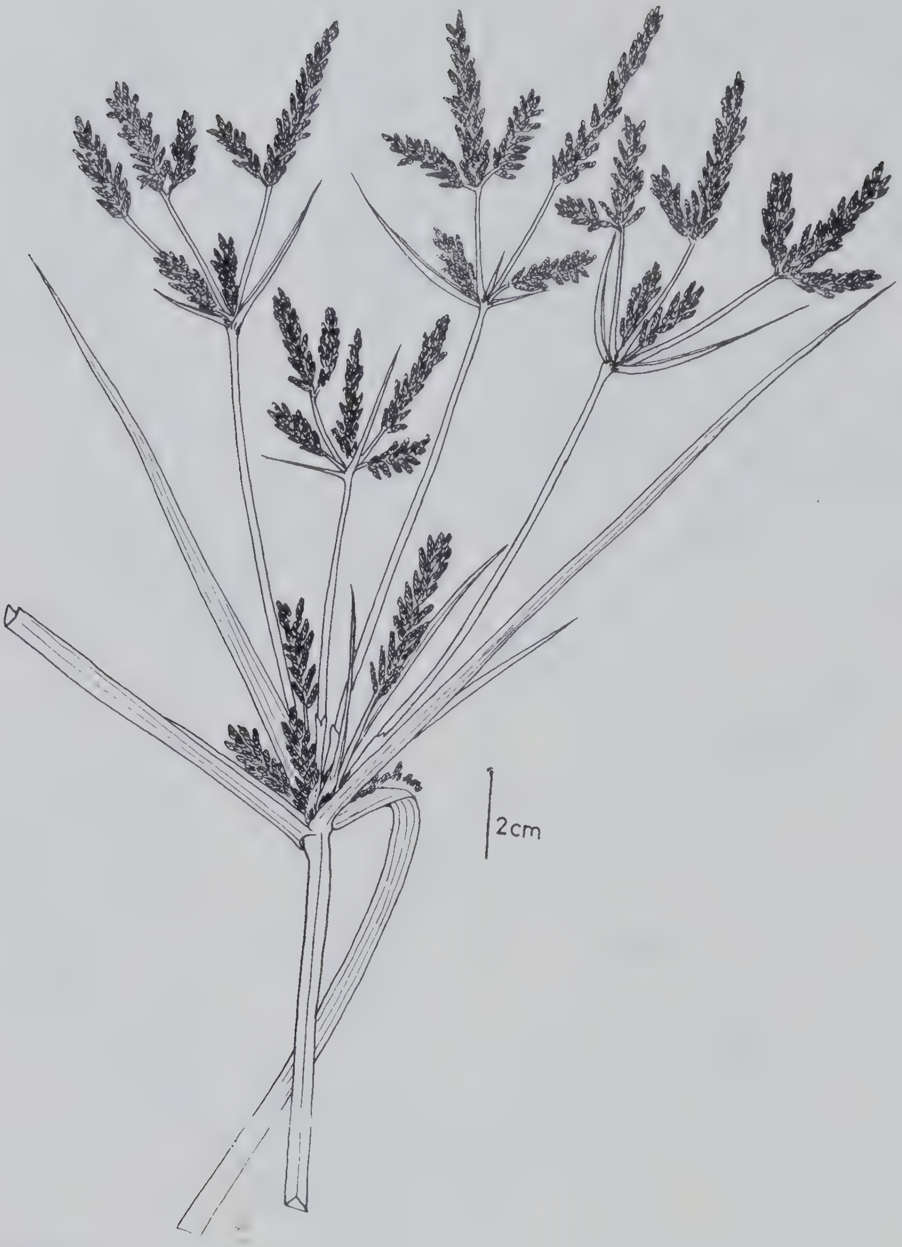
Najas minor All.

Characteristics : A slender, submerged, aquatic herb with dichotomous branches. Leaves linear-narrow, toothed at margin, sheathing at base. Male flowers enclosed in a spathe. Female flowers not enclosed in a spathe; ovary one. Fruits 2 to 3 mm long, ellipsoid.

Habitat : Open water areas; usually found in association with *Hydrilla verticillata*.

Fl. & Fr. : March to May and August to November.

Reference : FBI. 6:569; FUGP. 3:317; FBR. 232



80. CYPERACEAE

CYPERUS L.

Cyperus alopecuroides Rottb.

Synonym : *Juncellus alopecuroides* Clarke

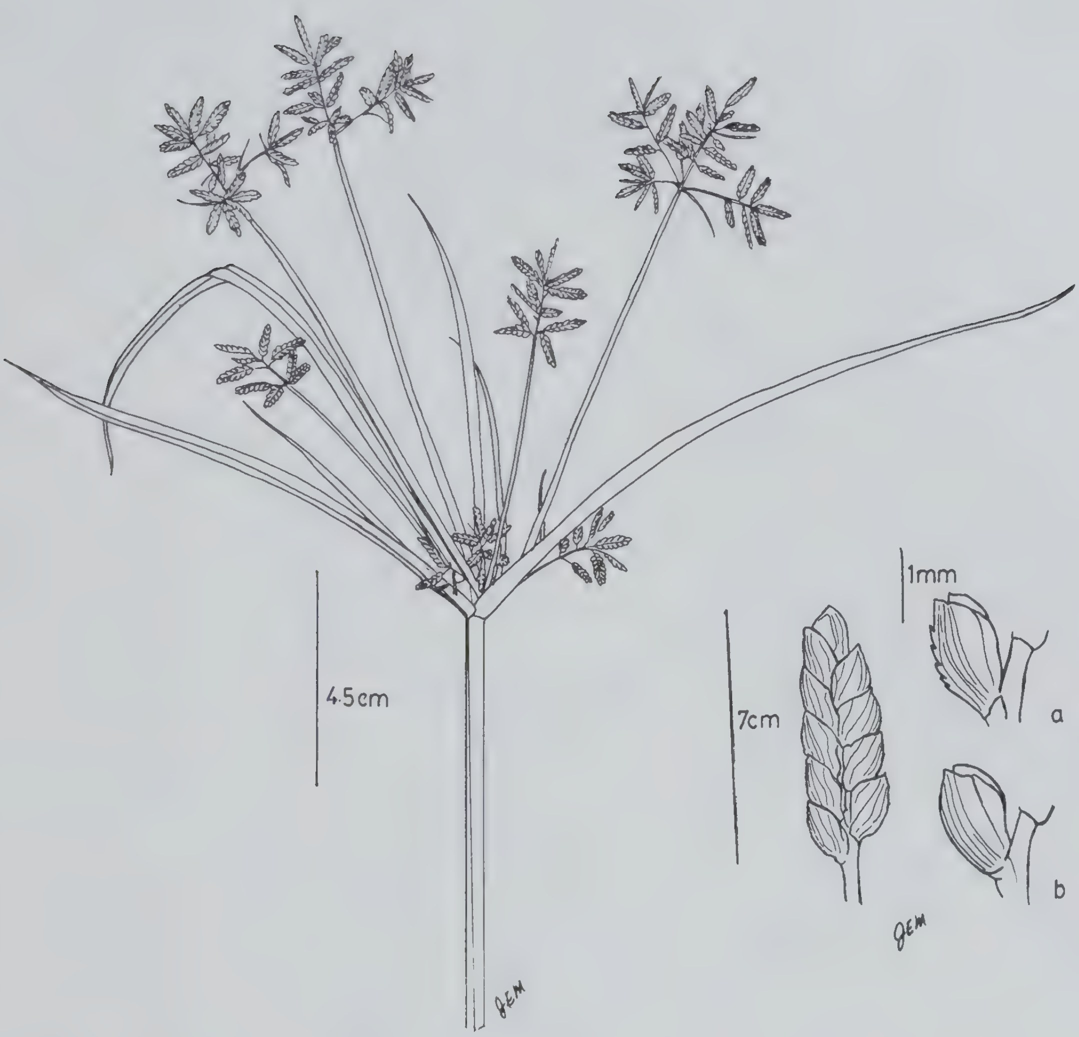
Local name : Motha patera

Characteristics : A tufted, perennial sedge with very short rhizome, up to 150 cm high. Flowering stems trigonous above, rounded below. Leaves more than 50 cm long, flat with prominent midrib beneath and 2 lateral nerves strongly marked above. Inflorescence usually compound, up to 30 cm long. Involucre bracts 3 to 7, leaf-like, unequal in size. Spikes up to 4.5 cm long, oblong-cylindrical or cylindrical, digitately arranged; rachis hidden by densely arranged spikelets. Glumes apiculate. Nuts dorsoventrally compressed, elliptic to slightly obovate, golden yellow.

Habitat : Moist soil along the dykes and in shallow water areas; very common.

Fl. & Fr. : July to December and March to May.

Reference : FBI. 6:595; FUGP. 3:340; FD. 352; FNER. 410; FBR. 236



a. **Cyperus alulatus** Kern

Characteristics : A tufted annual with trigonous stem, up to 45 cm high. Leaves radical, as long or longer than the stem. Involucre of bracts 6 to 8, unequal in length. Spikes up to 3 cm long, in umbellate inflorescence. Glumes ovate, with finely toothed margin. Nuts obovoid, apiculate, about 1.5 mm long, reddish brown.

Habitat : Frequently seen in marshy areas.

Fl. & Fr. : September to November.

Reference : HFD. 553; FTD. 199

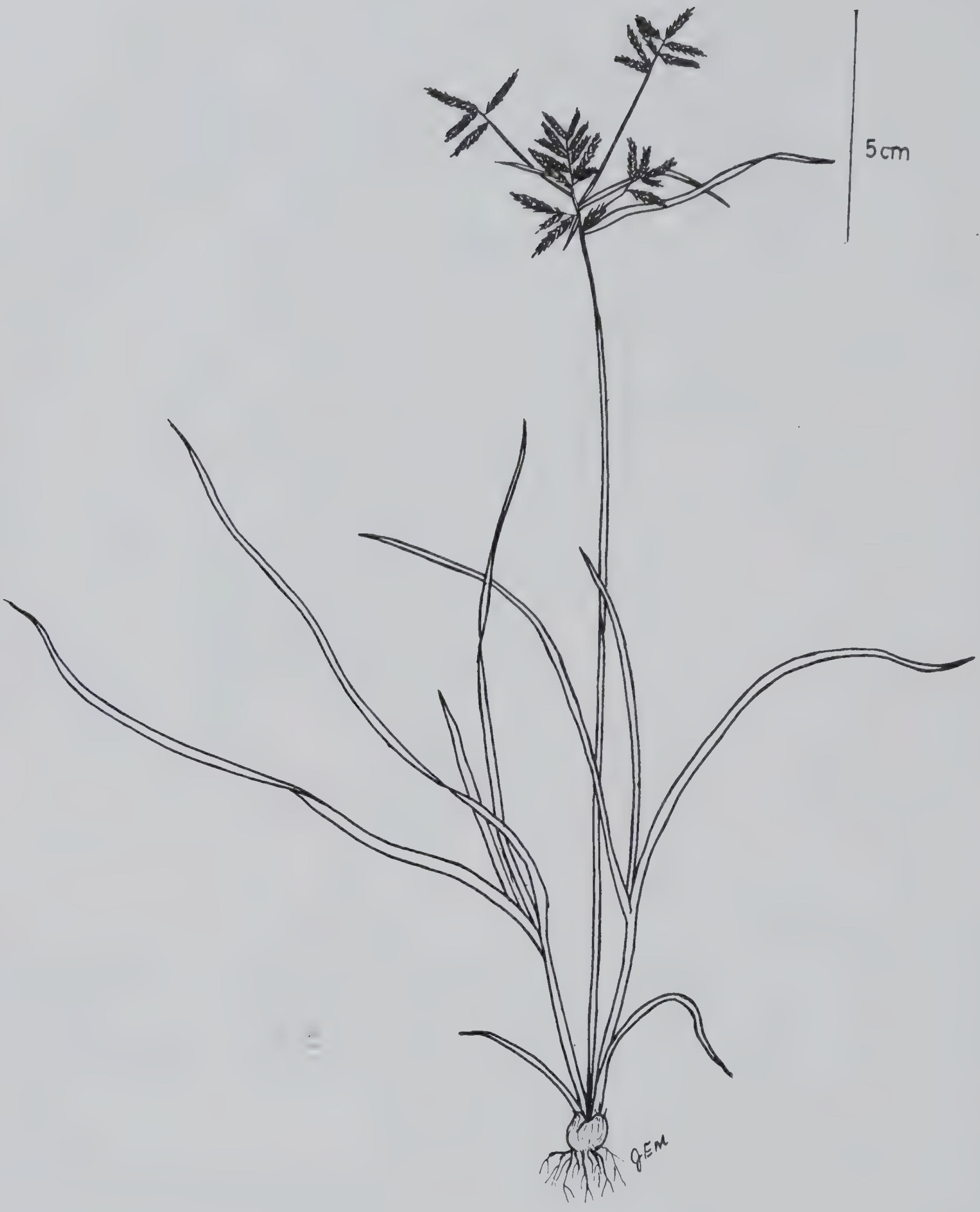
b. **Cyperus iria** L.

Characteristics : A tufted annual or perennial with yellowish red roots. Stem trigonous, up to 50 cm high. Leaves few, equal or subequal in length to stem, 5 mm wide, gradually acuminate to apex. Inflorescence simple or compound, greatly vary in size. Involucre bracts 3 to 5, larger ones overtopping the inflorescence. Spikes narrow, oblong-ovoid, with 5 to 25 spikelets, turning golden brown with age; rachis not winged. Nuts trigonous, obovoid-ellipsoid, shiny dark brown to black.

Habitat : Moist soil on mudflats of monsoonal pools; rare.

Fl. & Fr. : August to November.

Reference : FBI. 6:606; FUGP. 3:329; FD. 357; FID. 368; FNER. 414



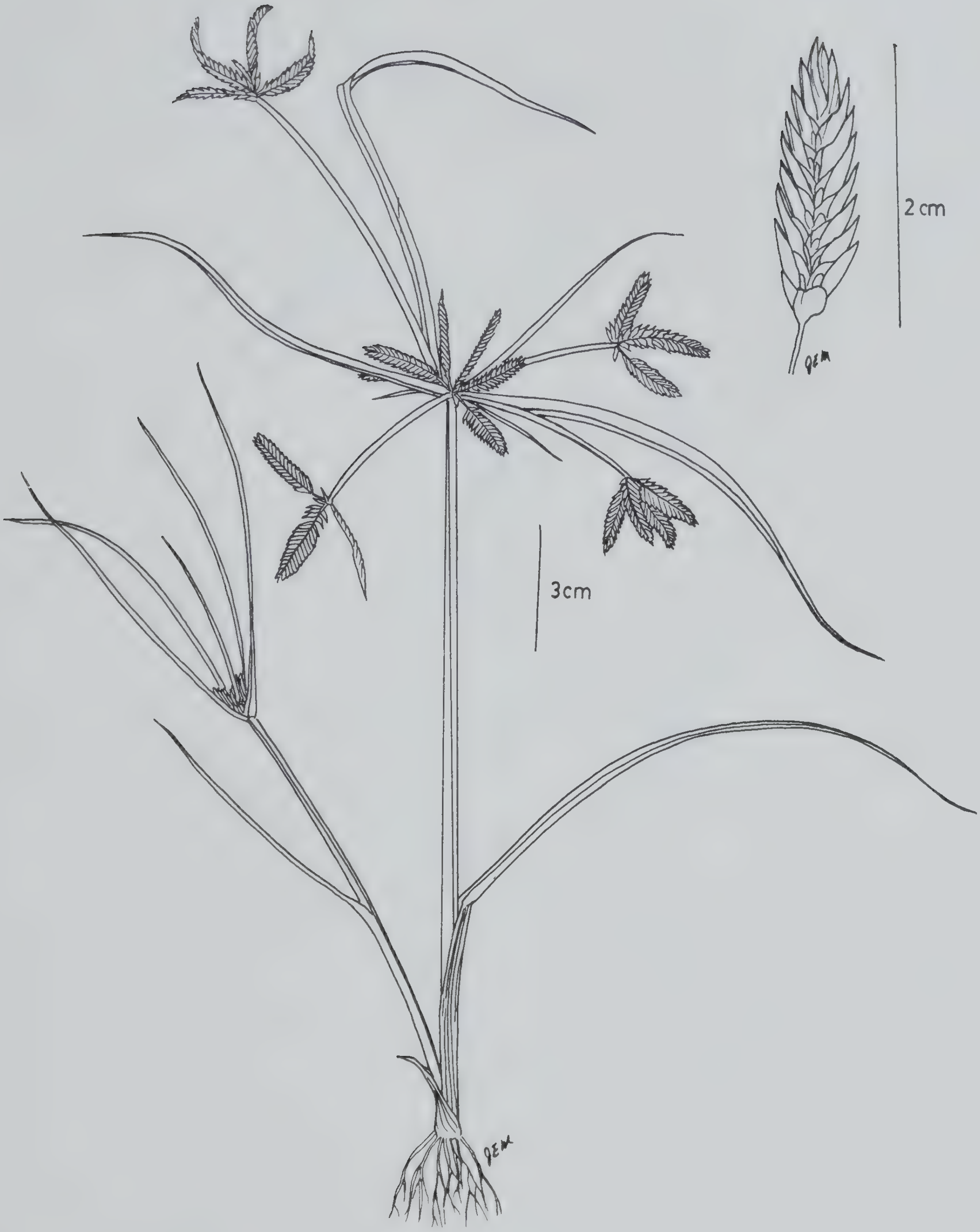
Cyperus bulbosus Vahl

Characteristics : A small, tufted perennial with ovoid to fusiform, whitish or shiny black, bulb-like tubers. Stem arising from the tuber, slender, trigonous, 15 to 30 cm high. Leaves as long as or longer than the stem, gradually acuminate atapex, 1 to 2 mm wide. Involucre bracts 2 to 3, usually overtopping the inflorescence. Spikes arranged in sub-umbellate inflorescence. Spikelets 4 to 12 in each spike. Nuts trigonous, obovoid to ellipsoid, apiculate, about 1.5 mm long, black.

Habitat : Open wet areas throughout the wetlands and along the roadsides; common after first rain.

Fl. & Fr. : August to October.

Reference : FBI. 6:611; FUGP. 3:336; FD. 356; FID. 366; FNER. 411



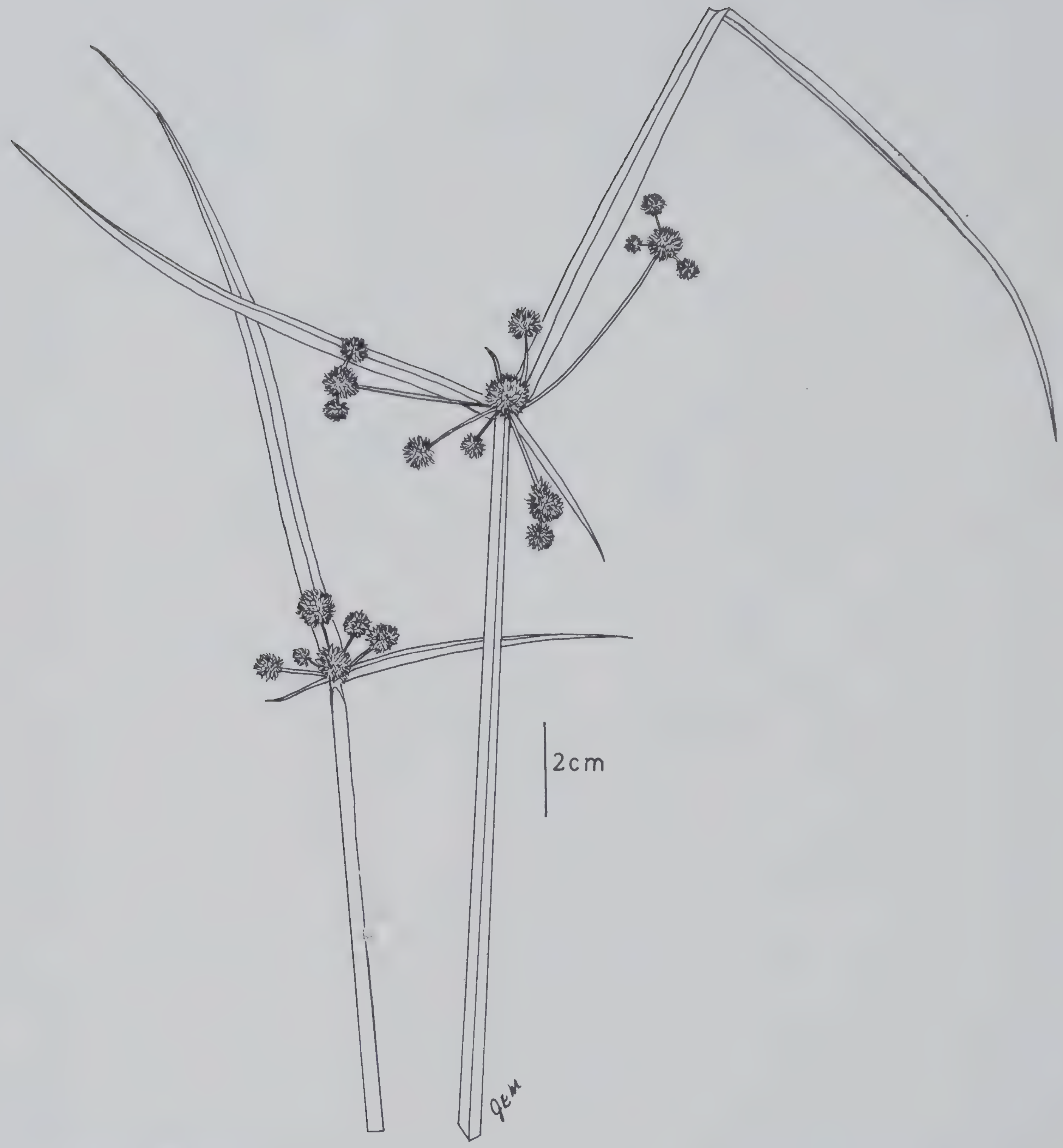
Cyperus compressus L.

Characteristics : A tufted annual with trigonous glabrous stems, up to 40 cm high. Leaves from the base of the stem, shorter or somewhat longer than the stem, acuminate at apex, 2 to 4 mm wide. Lower sheath reddish brown. Inflorescence umbellate with 3 to 6 broadly ovoid spikes. Involucre bracts 3 to 5, lower one overtopping the inflorescence. Spikelets 3 to 10 in each spike; glumes strongly keeled. Nuts trigonous, broadly obovoid, shortly apiculate, 1 to 1.5 mm long, dark brown to black.

Habitat : Moist soil along roadsides and in dried monsoonal pools; common after rain.

Fl. & Fr. : July to December.

Reference : FBI. 6:605; FUGP. 3:328; FD. 356; FID. 367; FNER. 411



Cyperus difformis L.

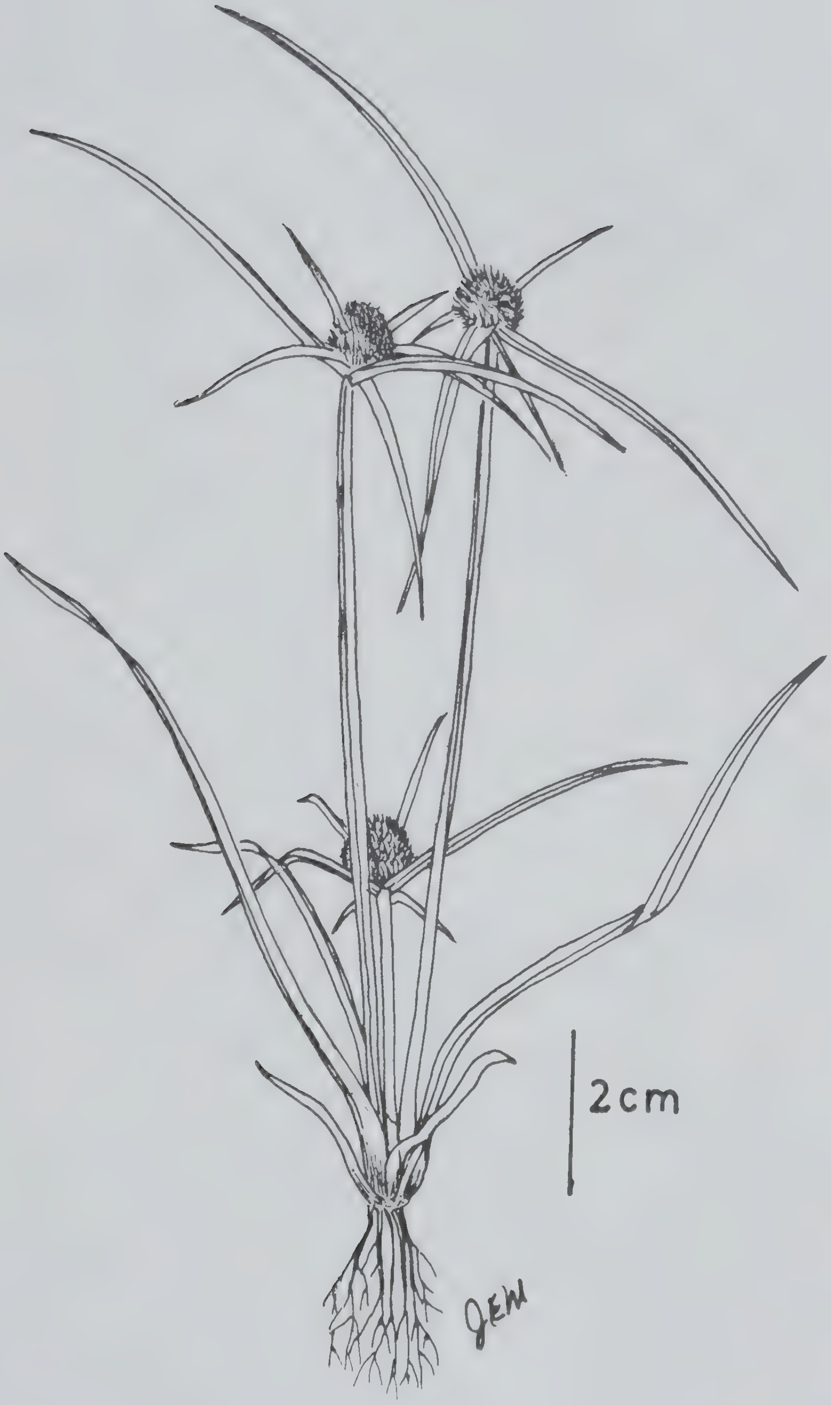
Local name : Mothi

Characteristics : A tufted annual with reddish-purple, fibrous roots and glabrous trigonous stem, up to 40 cm high. Leaves few, equal or subequal in length to the stem, abruptly acuminate at apex, 2 to 5 mm wide. Involucre bracts 2 to 3, longer than the inflorescence. Spikes globose, very dense with numerous spikelets. Glumes overlapping, hyaline at margin. Nuts trigonous, ellipsoid or slightly obovoid, apiculate, yellowish-brown.

Habitat : Wet soil; common in monsoonal pools when water recedes.

Fl. & Fr. : August to December.

Reference : FBI. 6:599; FUGP. 3:325; FD. 355; FID. 368; FTD. 200



Cyperus pygmaeus Rottb.

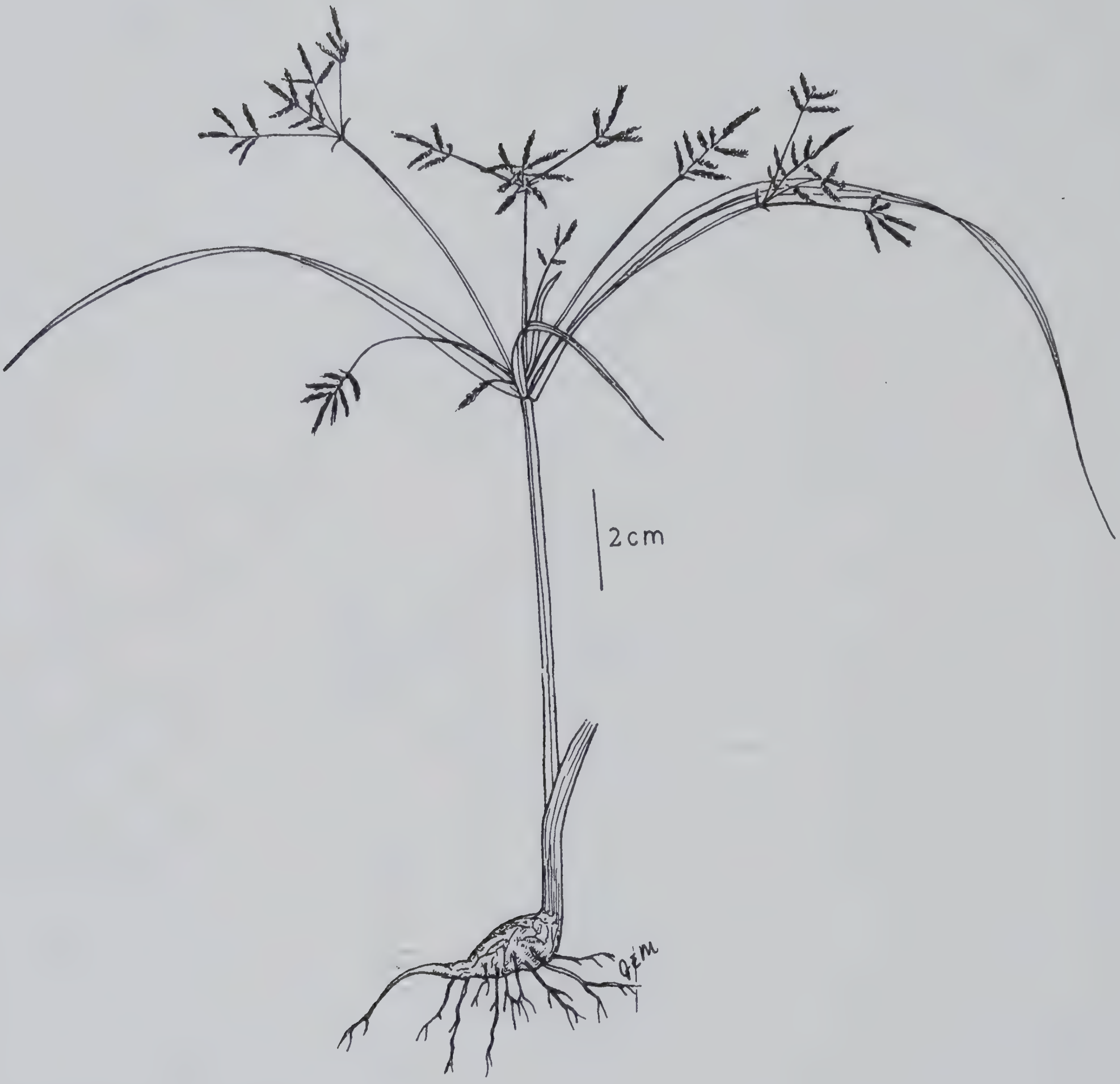
Synonyms : *C. michelianus* (L.) Del. subsp. *pygmaeus* Aschers. & Graebn.
Juncellus pygmaeus Clarke

Characteristics : A tufted annual up to 15 cm high. Leaves numerous, as long or longer than stem, gradually acuminate at apex. Basal sheath brown or red. Inflorescence a terminal, solitary, globose head of spikelets. Involucre bracts 2 to 7, unequal in length. Glumes thinly membranous, overlapping, with acuminate apex. Nuts trigonous or planoconvex, about 1 mm long, pale brown.

Habitat : Marshy areas and moist sandy soils; scattered in monsoonal pools when water recedes.

Fl. & Fr. : August to November.

Reference : FBI. 6:596; FUGP. 3:341; FID. 369; FNER. 415; FTD. 202



Cyperus rotundus L.

Local name : Motha

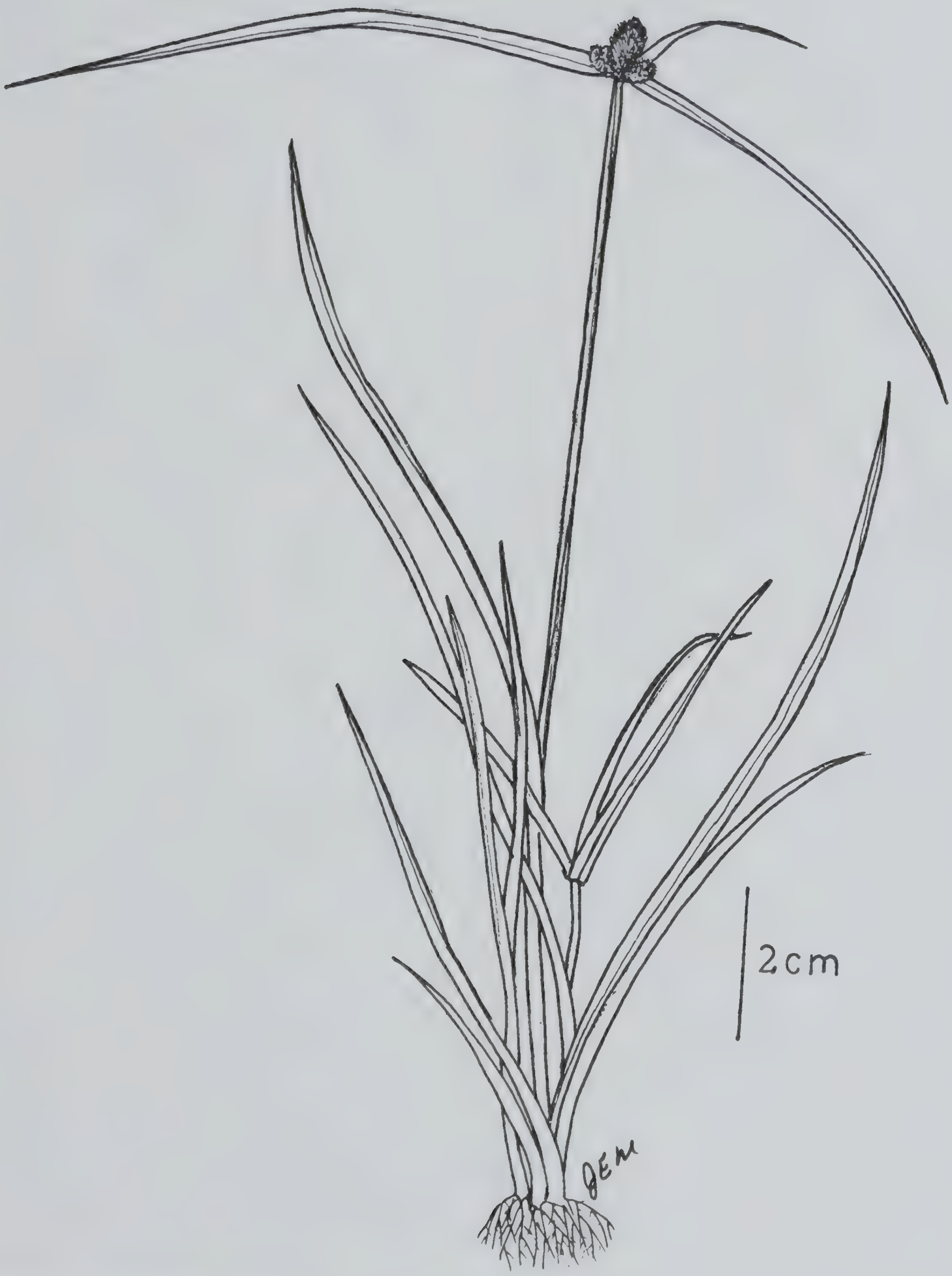
Characteristics : A rhizomatous perennial with long, slender stolons ending in subglobose or ellipsoid blackish tubers. Stems slender, trigonous, tuberous at base. Leaves arise from the base, as long as or slightly shorter than the stem, gradually acuminate at apex. Inflorescence an umbel of 3 to 9 spikes. Involucre bracts 2 to 4, overtopping the inflorescence. Spikelets 2 to 12 on each spike. Glumes overlapping, membranous. Nuts trigonous, oblong-obovoid, apiculate, about 1.5 mm long, brownish to black.

Habitat : Moist sandy soil to shallow water areas; scattered along roadsides and margins of aquatic area.

Fl. & Fr. : September to December.

Reference : FBI. 6:614; FUGP. 3:332; FD. 356; FID. 371; FNER. 416

Note : Plants propagate by means of tubers.



Cyperus triceps (Rottb.) Endl.

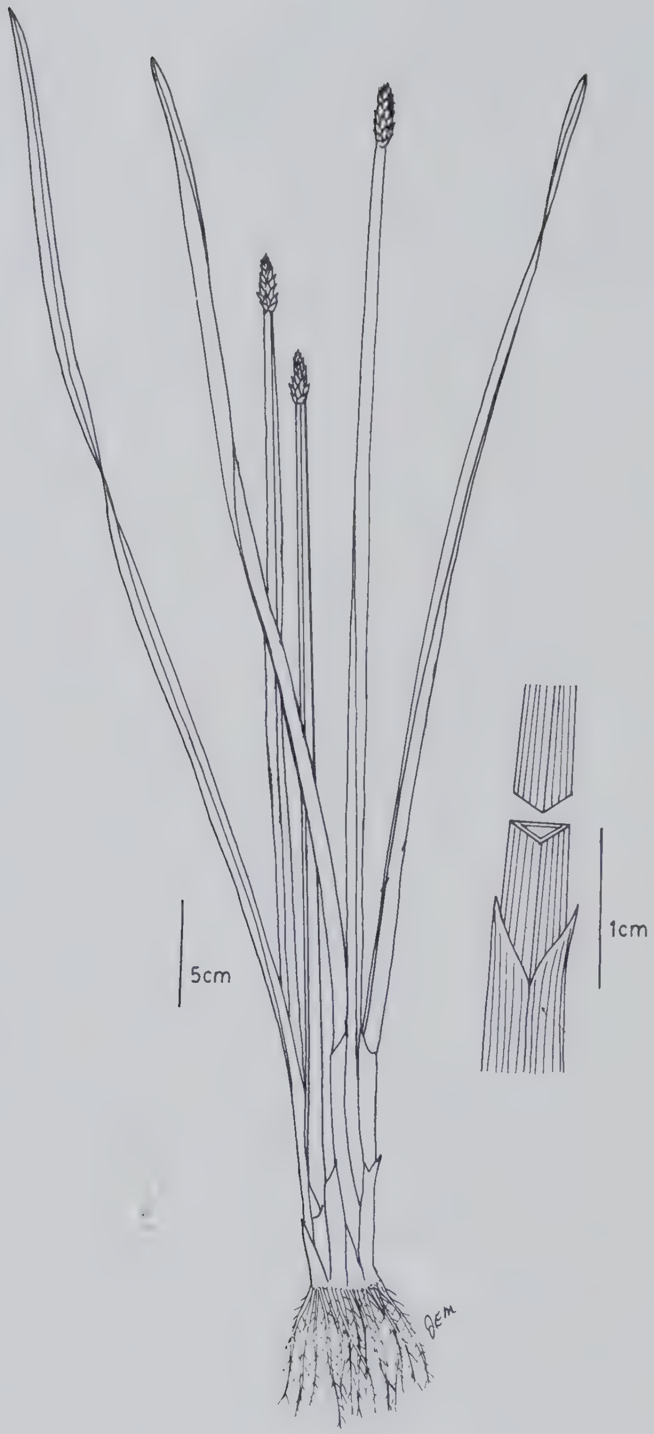
Synonym : *Kyllinga triceps* Rottb.

Characteristics : A tufted perennial with short rhizome, up to 25 cm high. Stem slender, trigonous, base covered with brownish, decaying sheath. Leaves as long or slightly longer than flowering stem, 2 to 4 mm wide, weak. Inflorescence usually comprised of 3 dense, sessile, cylindrical heads of yellowish-green to white spikelets; lateral ones somewhat smaller. Glumes mucronate, with 6 to 8 nerves. Nuts biconvex, laterally compressed, oblong, apiculate, about 1 mm, yellowish brown.

Habitat : Moist sandy areas.

Fl. & Fr. : August to October.

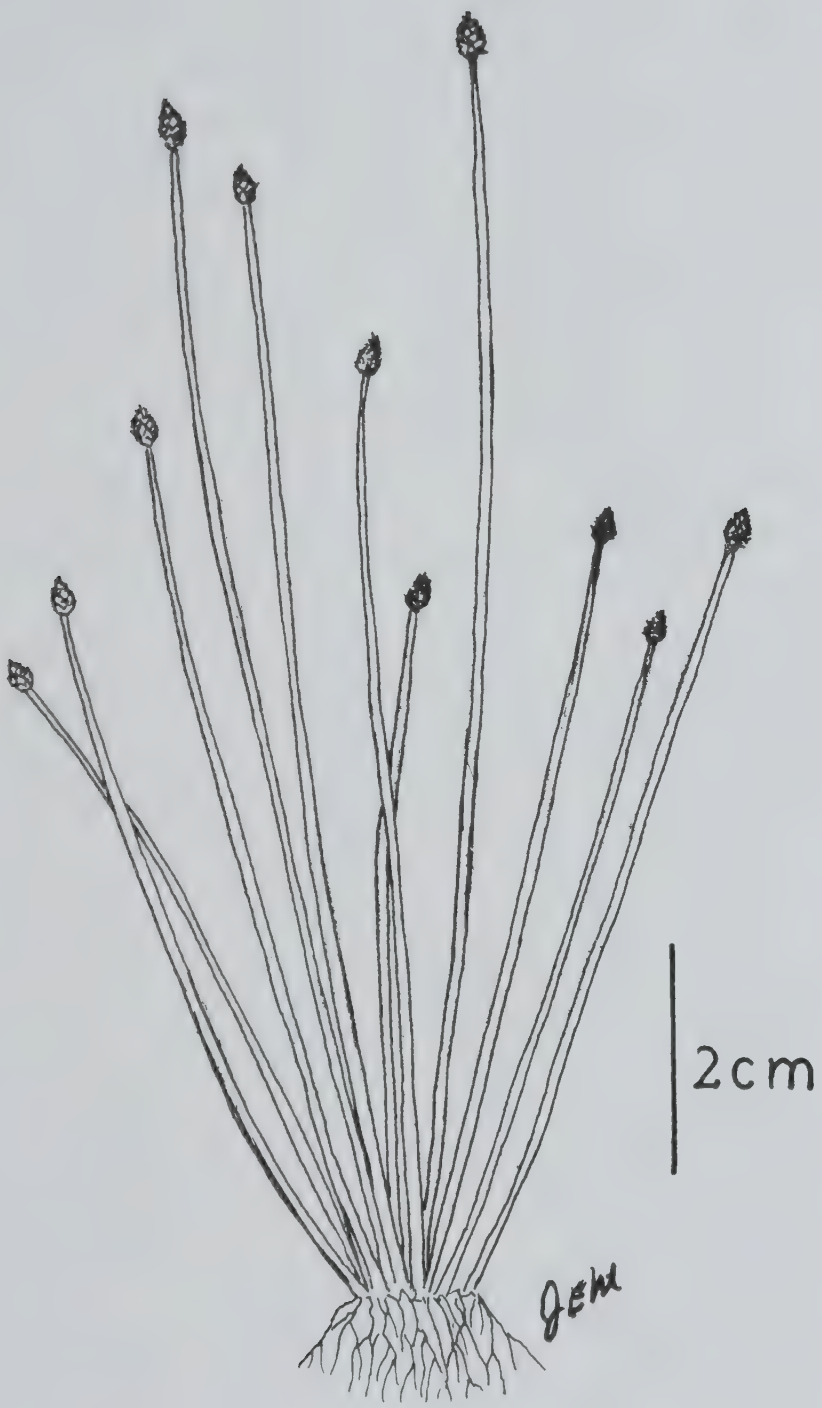
Reference : FBI. 6:587; FUGP. 3:343; FD. 353; FNER. 416; FTD. 203

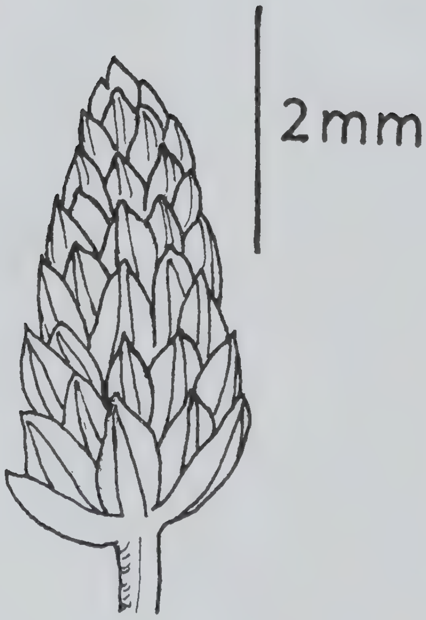


ELEOCHARIS R. Br.

Eleocharis acutangula (Roxb.) Schult.

Synonym	:	*E. fistulosa* Schult.
Characteristics	:	A perennial with short rhizome and long stolons. Stems rather stout, somewhat spongy, triangular, not septate, up to 80 cm high, 2 to 6 mm thick. Leaves absent; sheath membranous, oblique at mouth, purplish. Spikelets cylindrical, up to 5 cm long, acute at apex, many-flowered. Glumes overlapping, with hyaline margin, not keeled. Nuts obliquely biconvex, obovate, 1.5 to 2 mm long, dark brown.
Habitat	:	Shallow water areas of monsoonal pools; not common.
Fl. & Fr.	:	August to November.
Reference	:	FBI. 6:626; HFD. 562





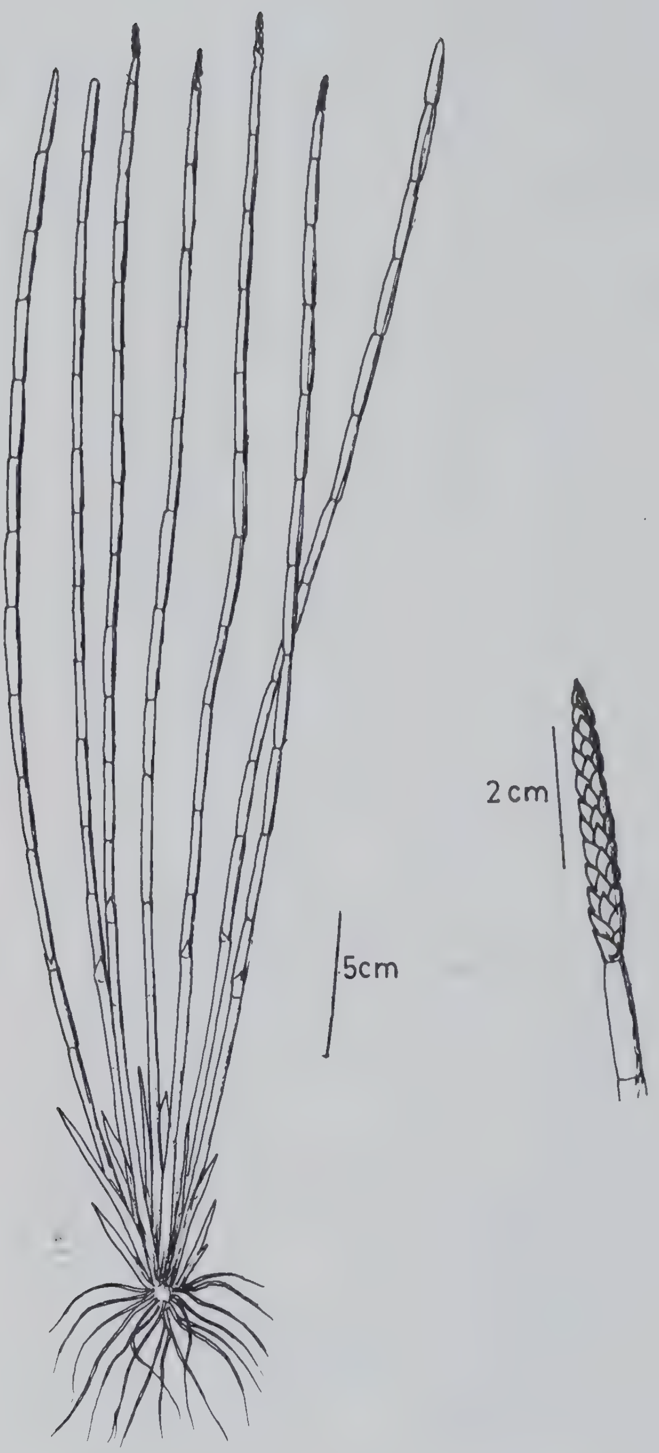
Eleocharis atropurpurea (Retz.) Kunth

Characteristics : An annual with slender, glabrous stems, up to 15 cm high. Leaf sheath 1.5 cm long, membranous, glabrous, purplish or brownish beneath. Spikelets oblong-ovoid, obtuse at apex, densely many flowered. Glumes membranous, elliptic, obtuse at apex. Nuts biconvex, obovate, shiny black.

Habitat : Moist soil; common on mudflats of monsoonal pools.

Fl. & Fr. : September to November.

Reference : FBI. 6:627; FD. 358; FID. 372; FBR. 240



Eleocharis dulcis (Burm. f.) Henschel

Synonym : *E. plantaginea* R. Br.

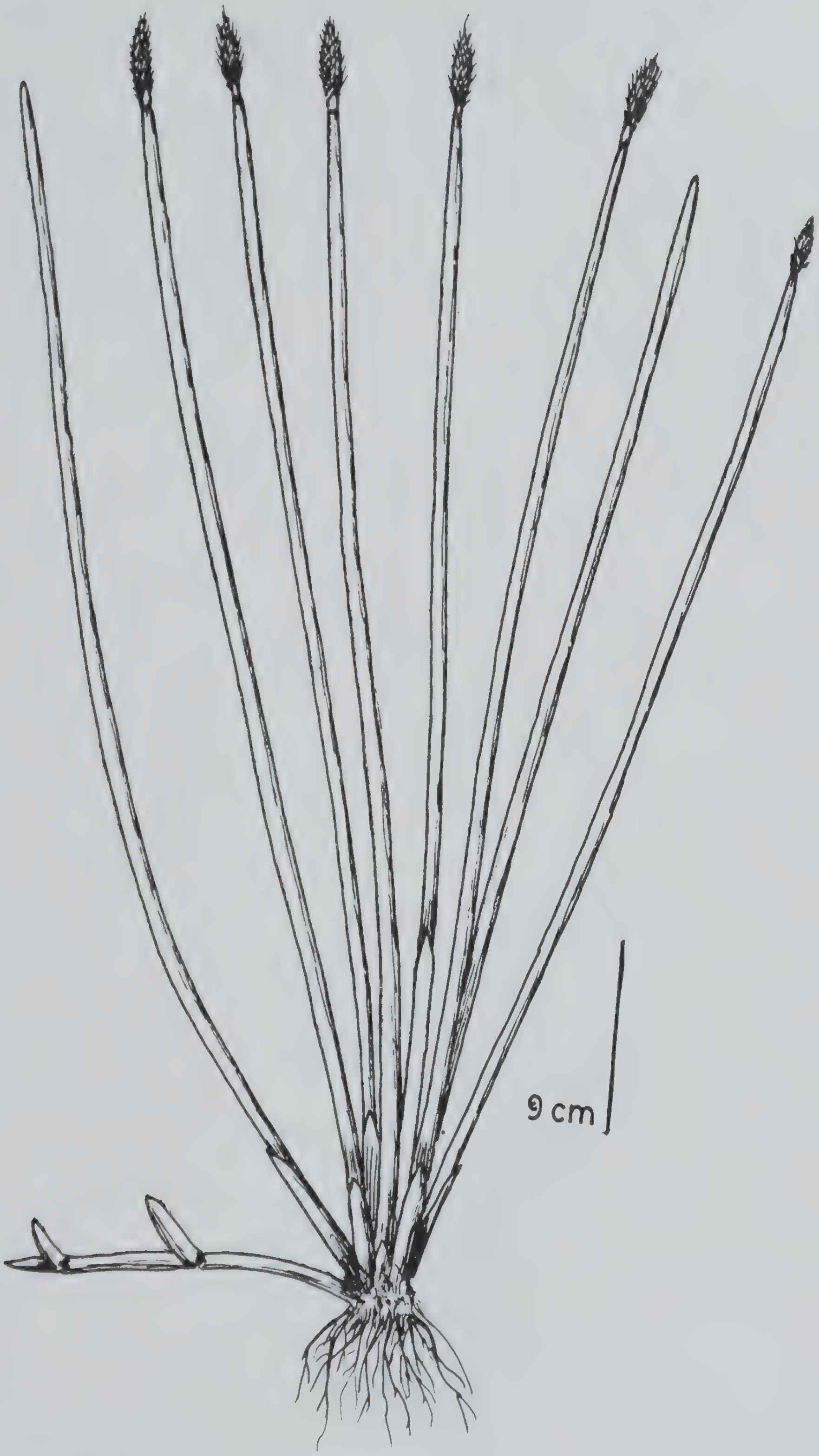
Local name : Pola

Characteristics : A rhizomatous perennial with elongated stolons and sometimes bearing subglobose, blackish to brownish tubers. Stems up to 1.5 m high, terete, longitudinally striate, hollow, conspicuously transversely septate. Sheath membranous, oblique at apex, purplish. Spikelets up to 5 cm long, cylindrical, slightly broader than the stem, many-flowered. Nuts biconvex, obovate, 1.5 to 2 mm long, shiny brown.

Habitat : Shallow to deep water areas, forming large patches.

Fl. & Fr. : September to November.

Reference : FBI. 6:625; FUGP. 3:348; HFD. 562



Eleocharis palustris R. Br.

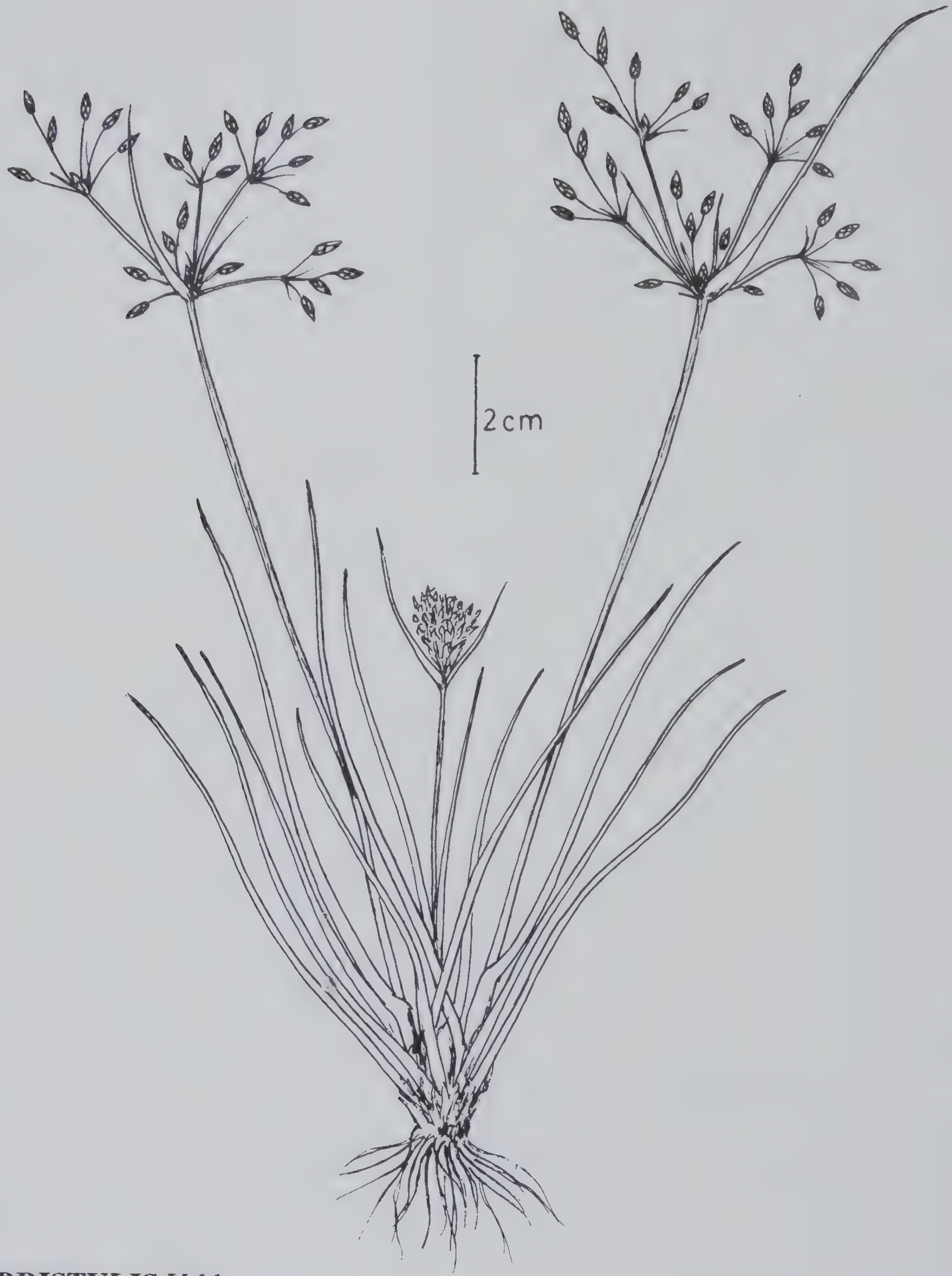
Local name : Poly

Characteristics : A tufted, perennial sedge with creeping rhizome and erect stem, up to 50 cm high. Stem cylindrical, longitudinally striate, not septate. Leaves absent; sheath truncate. Spikelets solitary, terminal, cylindrical, broader than stem, yellowish brown. Glumes overlapping, ovate-lanceolate. Nuts biconvex, broadly obovoid.

Habitat : Shallow water areas; found along the margin of Ghana canal.

Fl. & Fr. : December to April.

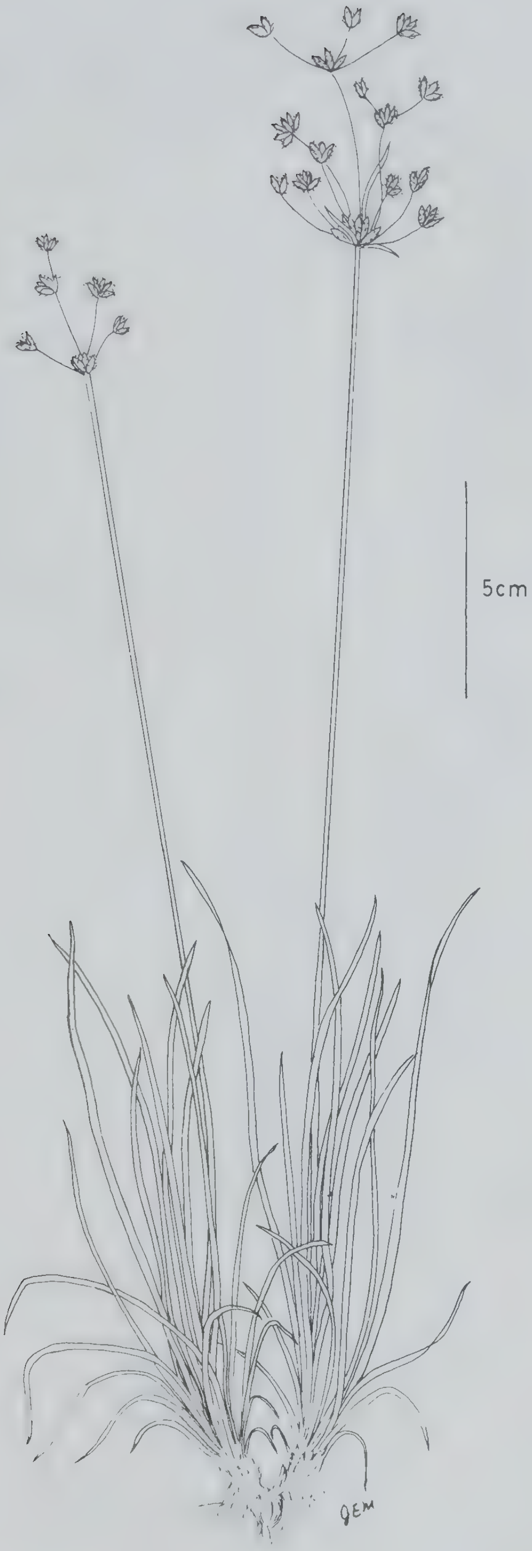
Reference : FBI. 6:628; FUGP. 3:348; FD. 358



FIMBRISTYLIS Vahl

Fimbristylis bisumbellata (Forssk.) Bubani

Synonym	:	*F. dichotoma* (*non* Vahl) Kunth
Characteristics	:	A tufted annual with fibrous roots, 10 to 20 cm high. Leaves shorter than stem, glabrous or pubescent beneath; sheath membranous. Inflorescence an umbel of few spikelets. Spikelets oblong-ovoid; glumes apiculated, keeled on back. Nuts biconvex, obovate.
Habitat	:	Moist sandy soil; not common.
Fl. & Fr.	:	October to April.
Reference	:	FBI. 6:635; FUGP. 3:351; FD. 359; FTD. 203



Fimbristylis falcata (Vahl) Kunth

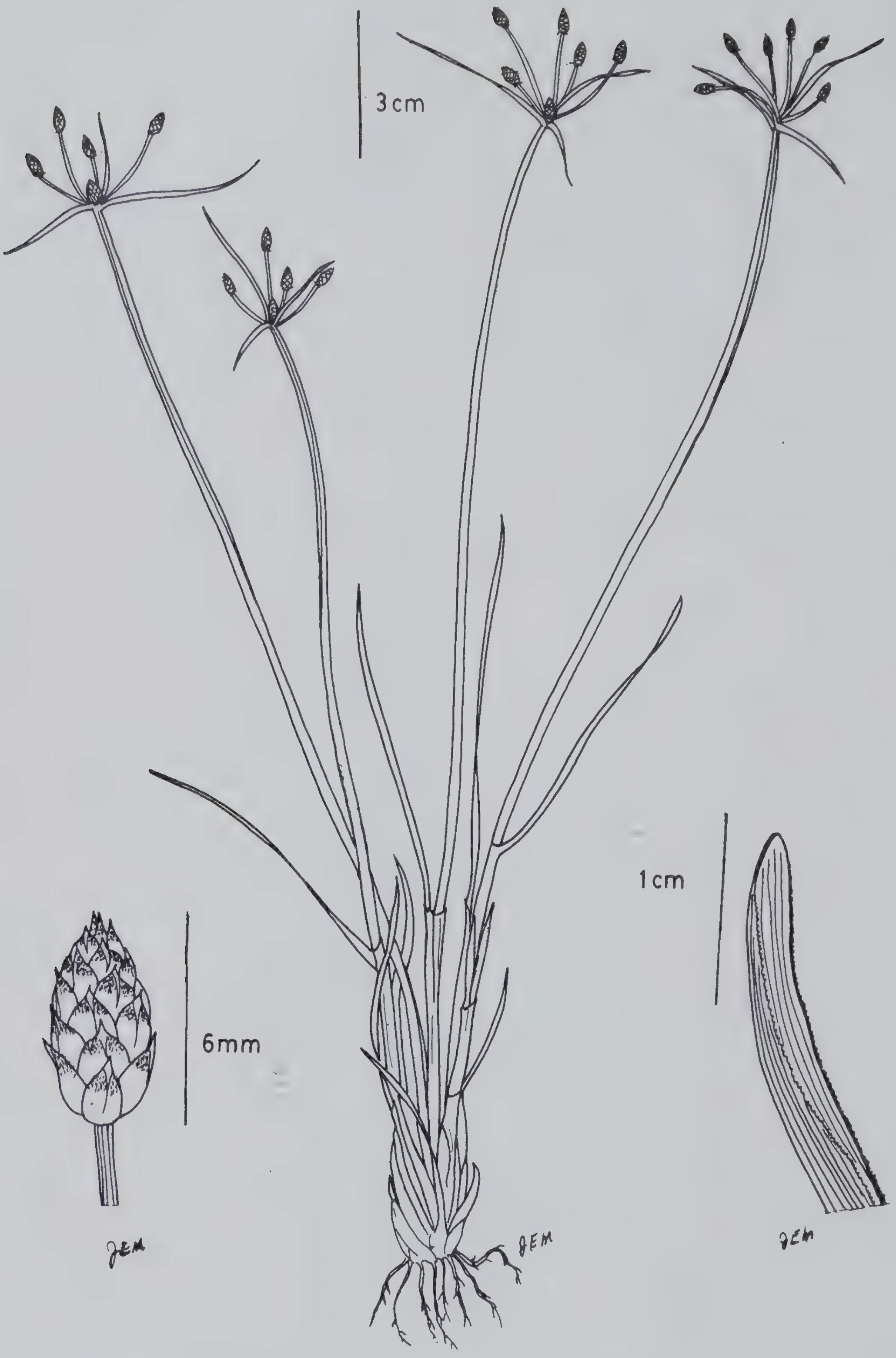
Synonym : *F. junciformis* (Nees) Kunth

Characteristics : A glabrous perennial with a woody, shortly creeping rhizome. Stems 4 to 5 angled, up to 30 cm high. Leaves clustered at base, shorter than the stem. Inflorescence a compound umbel with 20 to 30 spikelets arranged in clusters of 3 to 5. Involucre bracts 2 to 4. Spikelets ovoid; glumes spiral, mucronate. Nuts trigonous, obovoid.

Habitat : Moist sandy soil in open grassland; rare.

Fl. & Fr. : July to November.

Reference : FBI. 6:647; FUGP. 3:357; FD. 360



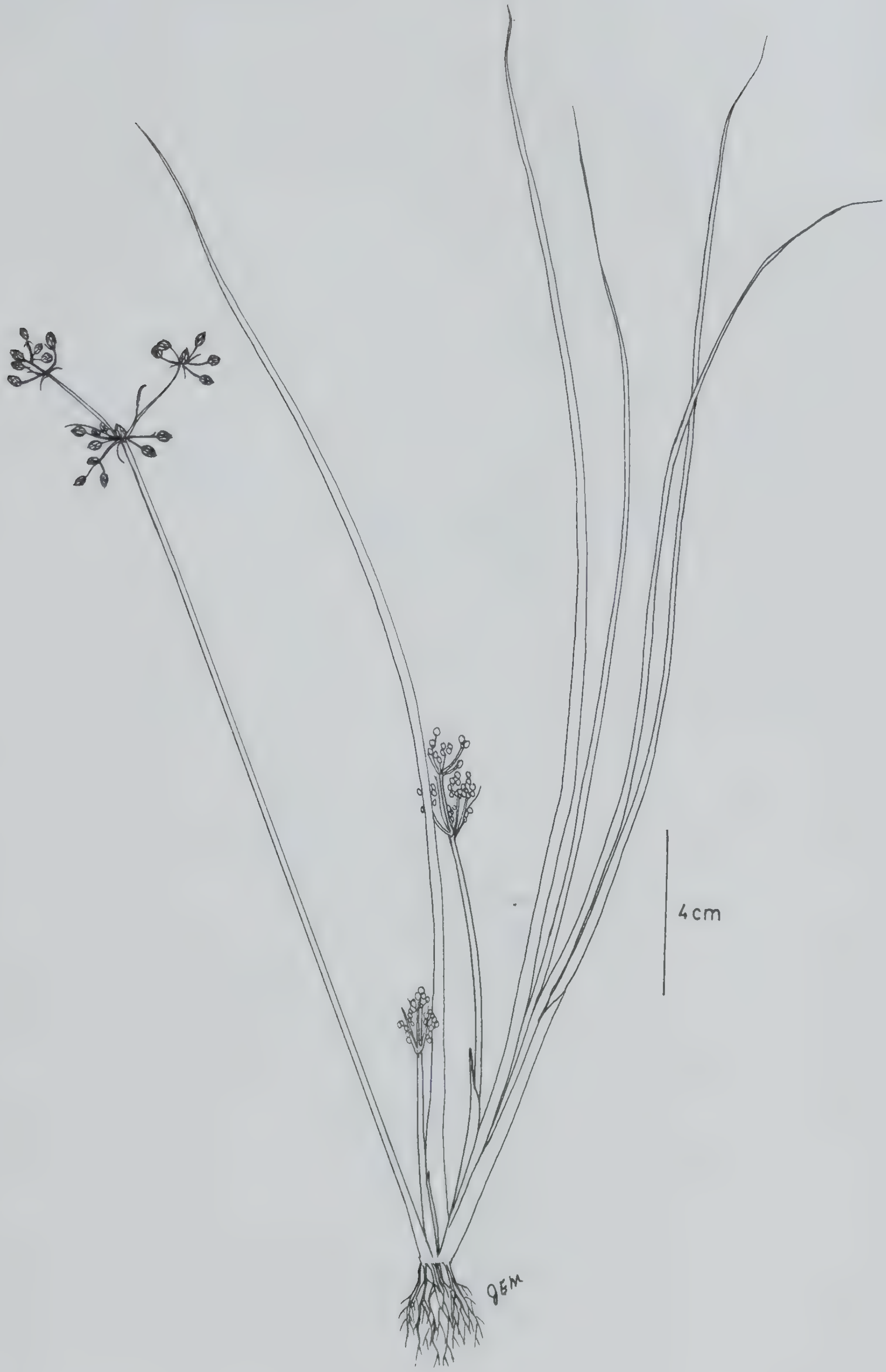
Fimbristylis ferruginea (L.) Vahl

Characteristics : A tufted perennial with short creeping rhizome. Stem striate, up to 7 cm high. Cauline leaves shorter than the stem; those of sterile shoots much longer. Inflorescence an umbel of 5 to 15 spikelets. Involucre bracts 2 to 3. Spikelets solitary, ovoid to oblong-ovoid, many-flowered. Glumes apiculate. Nuts biconvex, strongly compressed, obovate, about 1 mm long.

Habitat : Moist soil in open grasslands.

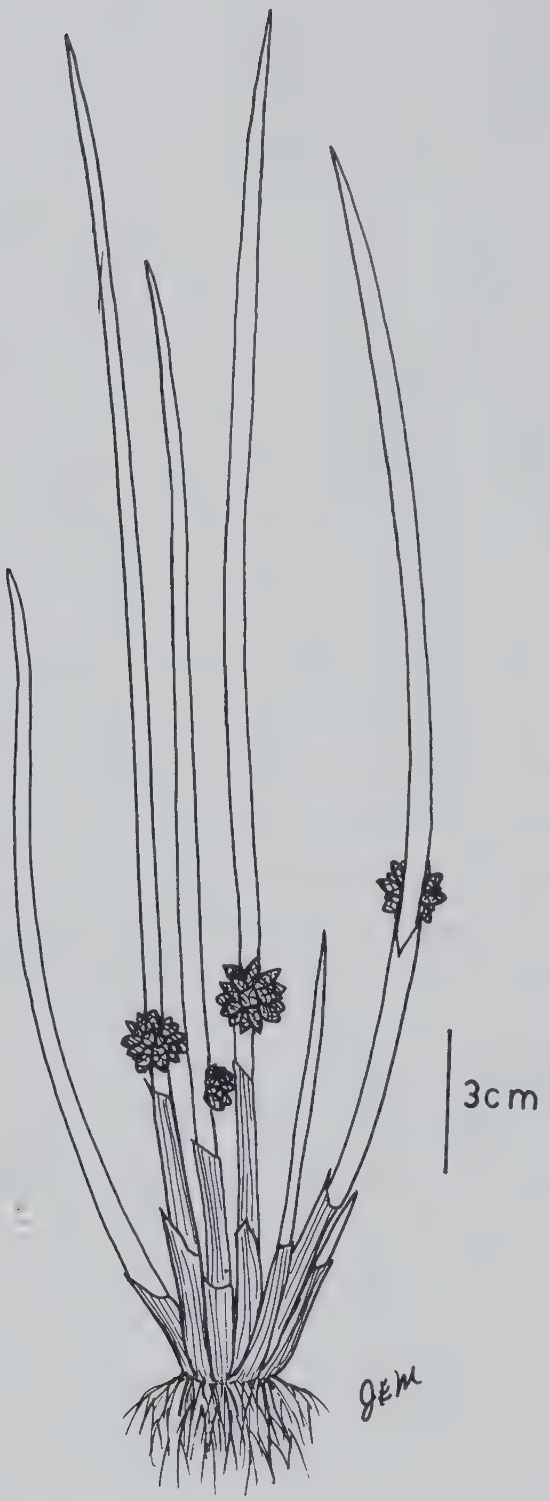
Fl. & Fr. : September to November.

Reference : FBI. 6:638; FUGP. 3:354; FD. 359; FID. 375; FNER. 419



Fimbristylis miliacea (L.) Vahl

Synonym	:	*F. quinquangularis* Kunth
Characteristics	:	A glabrous annual with fibrous roots. Flowering stems erect, densely tufted, up to 50 cm high. Leaves slightly shorter or as long as the stem. Inflorescence umbellate with numerous spikelets. Involucre bracts 4 to 5, much shorter than the inflorescence. Spikelets ovoid, brown; glumes spiral. Nuts obtusely trigonous, broadly ellipsoid to subglobose.
Habitat	:	Moist soil in open areas; not common.
Fl. & Fr.	:	August to November.
Reference	:	FD. 360; FID. 375; FTD. 204; FBR. 242



SCIRPUS L.

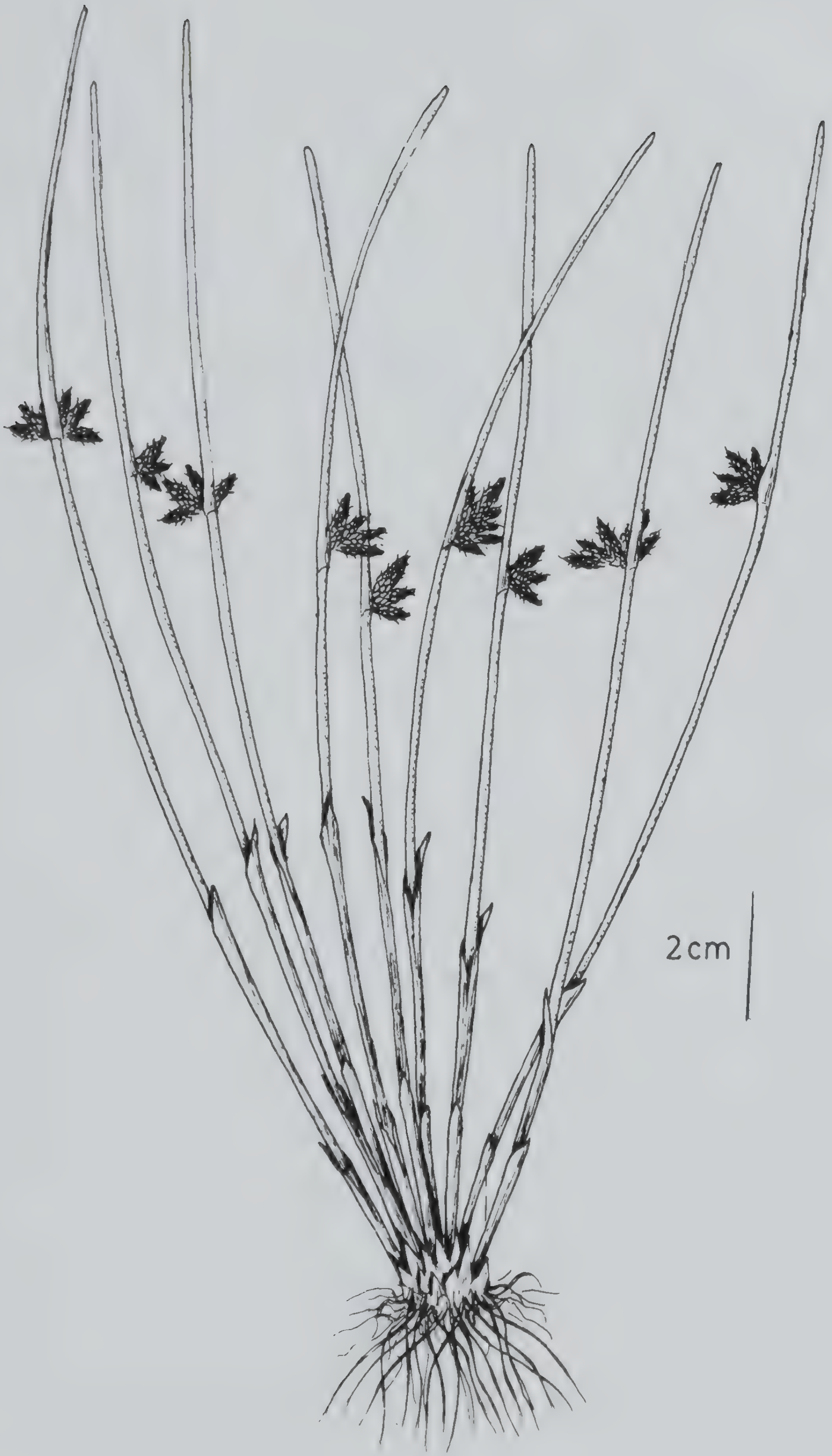
Scirpus articulatus L.

Characteristics : An annual or perennial with tufted stems. Stems circular, tapering towards the apex, transversely septate, up to 80 cm high. Leaves reduced to brownish sheaths. Inflorescence a large, sessile head of spikelets, borne laterally near the base of the stem. Spikelets ovoid; glumes about 5 mm long, mucronate. Nuts trigonous, obovate, about 1.5 mm long, black.

Habitat : Common on mudflats of monsoonal pools.

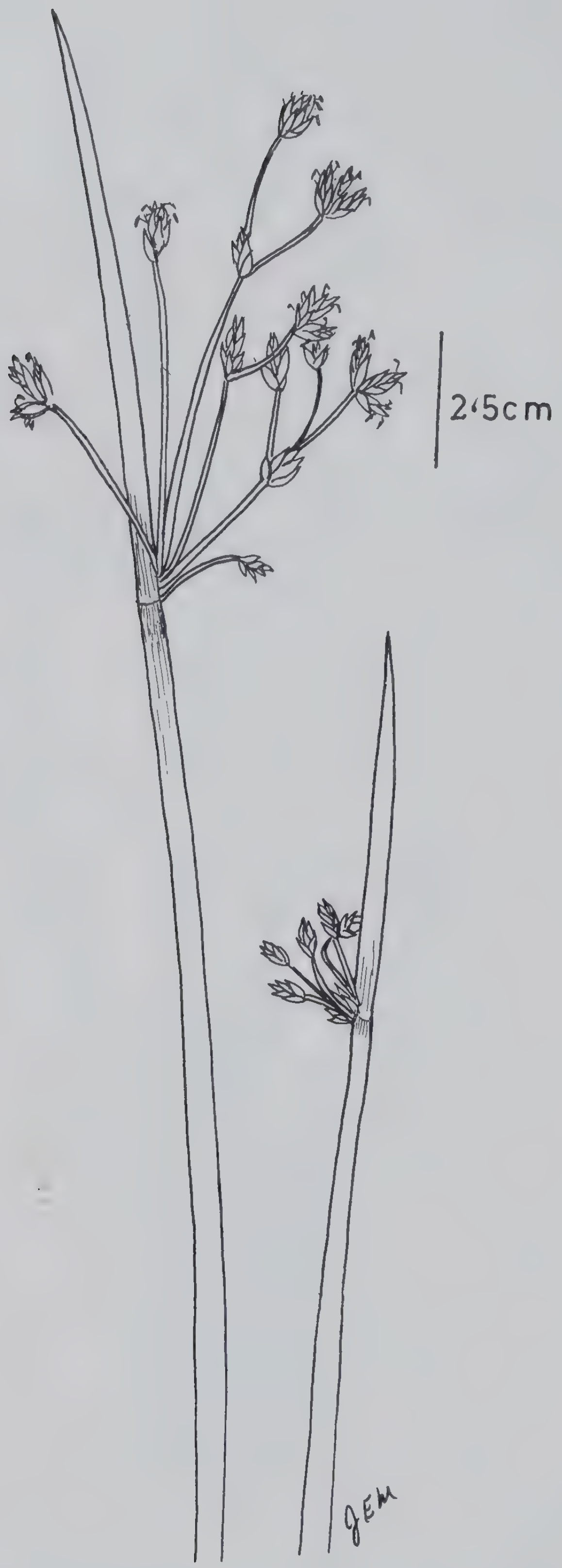
Fl. & Fr. : September to February.

Reference : FBI. 6:656; FUGP. 3:360; FD. 361; FBR. 244



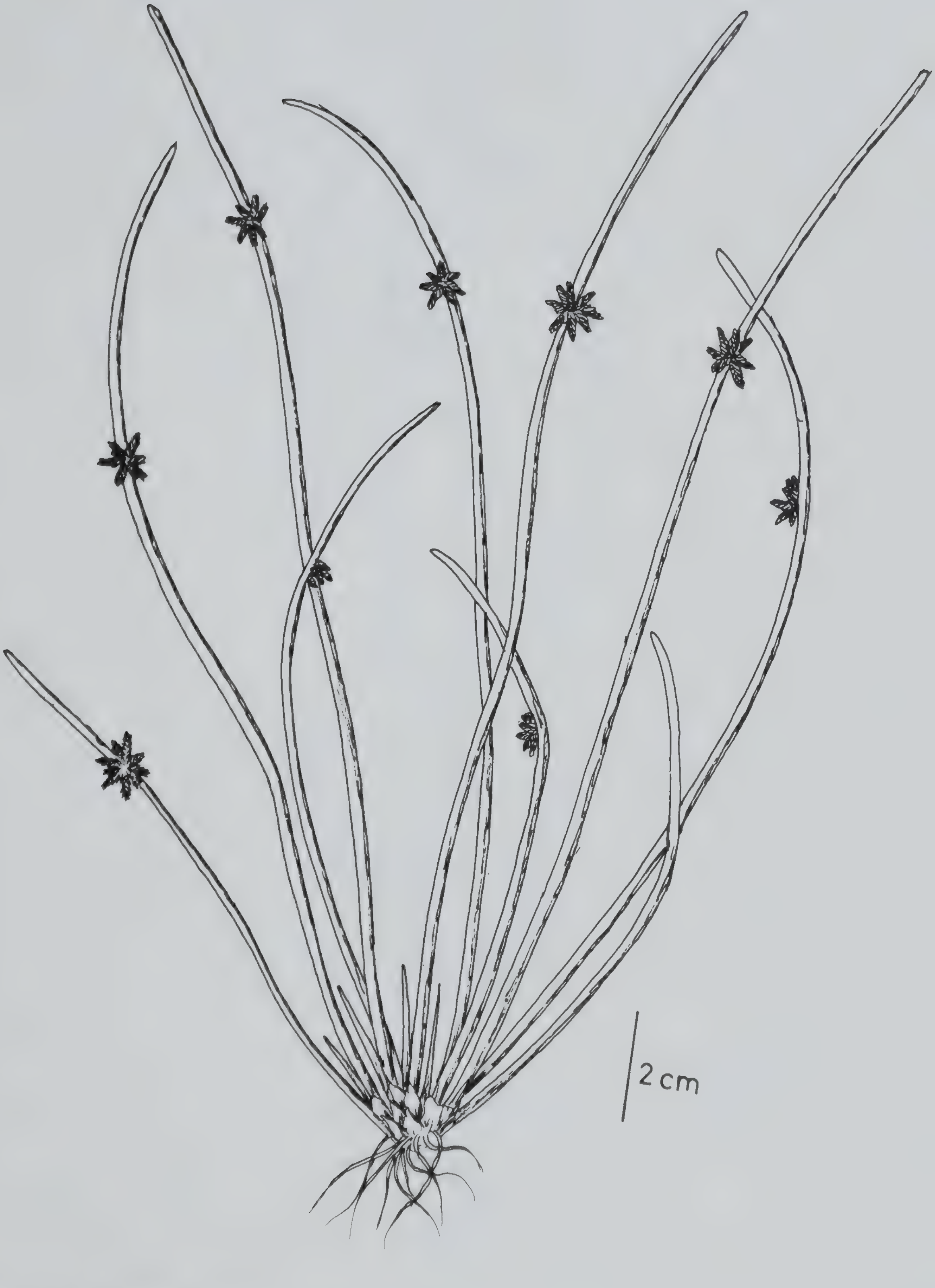
Scirpus lateriflorus Gmel.

Synonym	:	*S. supinus* L. var. *lateriflorus* (Gmel.) Koyama
Characteristics	:	An annual with slender, tufted stems, up to 6 cm high. Leaf sheath glabrous, with or without a short leaf blade. Spikelets 1 to 9, arranged in a pseudolateral cluster. Glumes membranous, keeled. Nuts compressed-trigonous, obovate, about 1 mm long, black.
Habitat	:	Mudflats of monsoonal pools.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 6:656; HFD. 570; FBR. 245



Scirpus littoralis Schrad.

Characteristics	:	A perennial with short rhizome. Stem stout, round, becoming narrow towards the apex, up to 120 cm high. Leaves reduced to basal sheaths. Inflorescence pseudolateral, borne near the apex. Spikelets pedicellate, ovoid to oblong-ovoid; glumes shortly mucronate. Nuts unequally biconvex, elliptic to obovate, about 1 mm long, blackish.
Habitat	:	Found in aquatic area along with *Paspalum distichum.*
Fl. & Fr.	:	September to December.
Reference	:	FBI. 6:657; FD. 362; FNER. 422; FBR. 244



Scirpus roylei (Nees) Parker

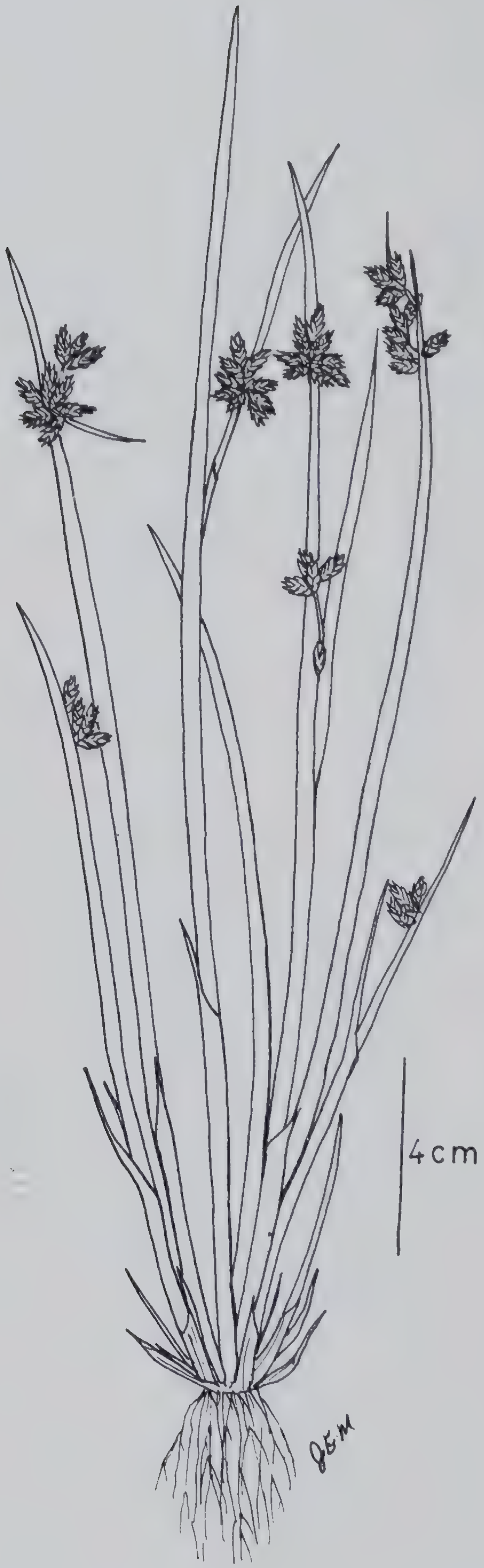
Synonym : *S. quinquefarius* Buch.-Ham. ex Boeck.

Characteristics : An erect, tufted annual with fibrous roots. Stem narrow, transversely septate, up to 50 cm high. Leaf sheath membranous. Inflorescence a lateral, dense head of yellowish spikelets, located above the middle of the stem. Nuts trigonous, black.

Habitat : Marshy areas and mudflats of monsoonal pools.

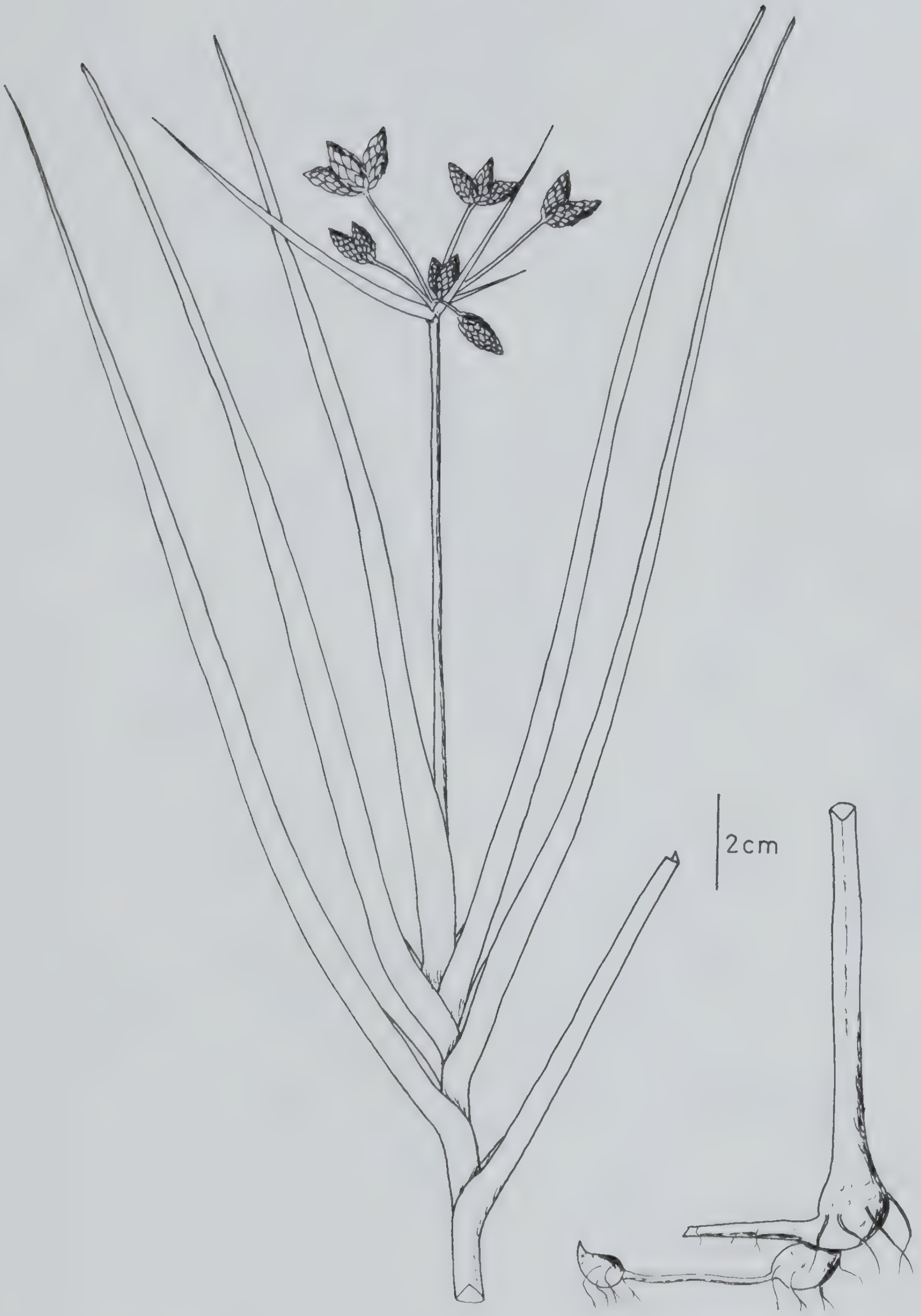
Fl. & Fr. : September to December.

Reference : FBI. 6:657; FD. 362; FNER. 422; FBR. 244



Scirpus supinus L.

Characteristics	:	A tufted annual with fibrous roots. Stems up to 25 cm long. Leaves if present, less than 3 cm long; sheath oblique at mouth. Spikelets 3 to 8 in a head, ellipsoid or oblong. Glumes strongly keeled. Nuts trigonous, black.
Habitat	:	Mudflats of monsoonal pools; not common.
Fl. & Fr.	:	September to December.
Reference	:	FBI. 6:655; FID. 378; FBR. 244



Scirpus tuberosus Desf.

Synonym : *S. maritimus* L.

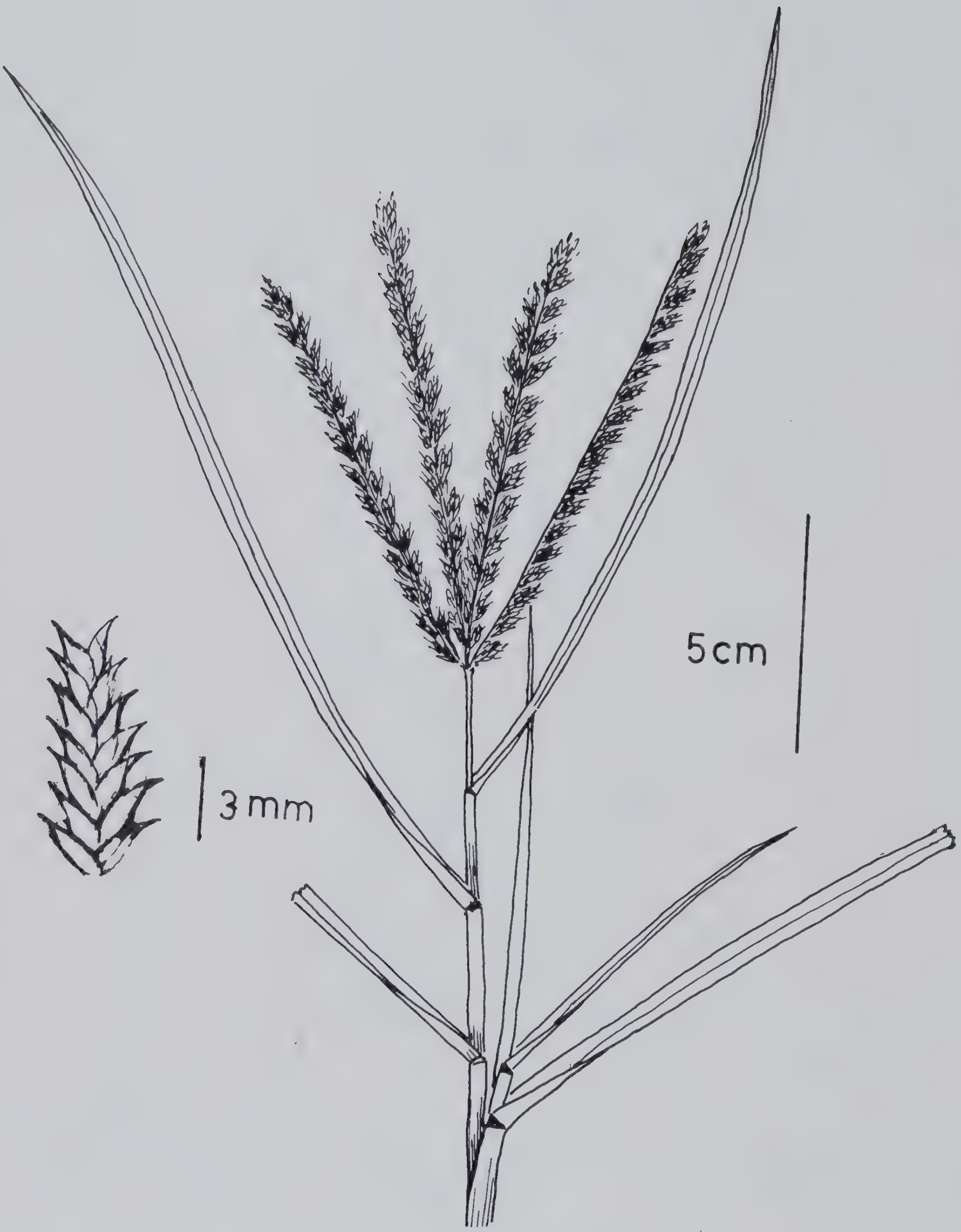
Local name : Motha

Characteristics : An erect sedge with creeping rhizome and woody tubers. Stem stout, trigonous. Leaves as long as the stems, 6 to 8 mm wide. Inflorescence a terminal umbel of spikelets. Involucre bracts 3 to 5, exceeding the inflorescence. Spikelets dull or dark brown, ovate, oblong or elliptic. Glumes bifid. Nuts planoconvex, smooth, polished, brown.

Habitat : Marshy areas and wet soil along the dykes; very common in Siberian crane's feeding area

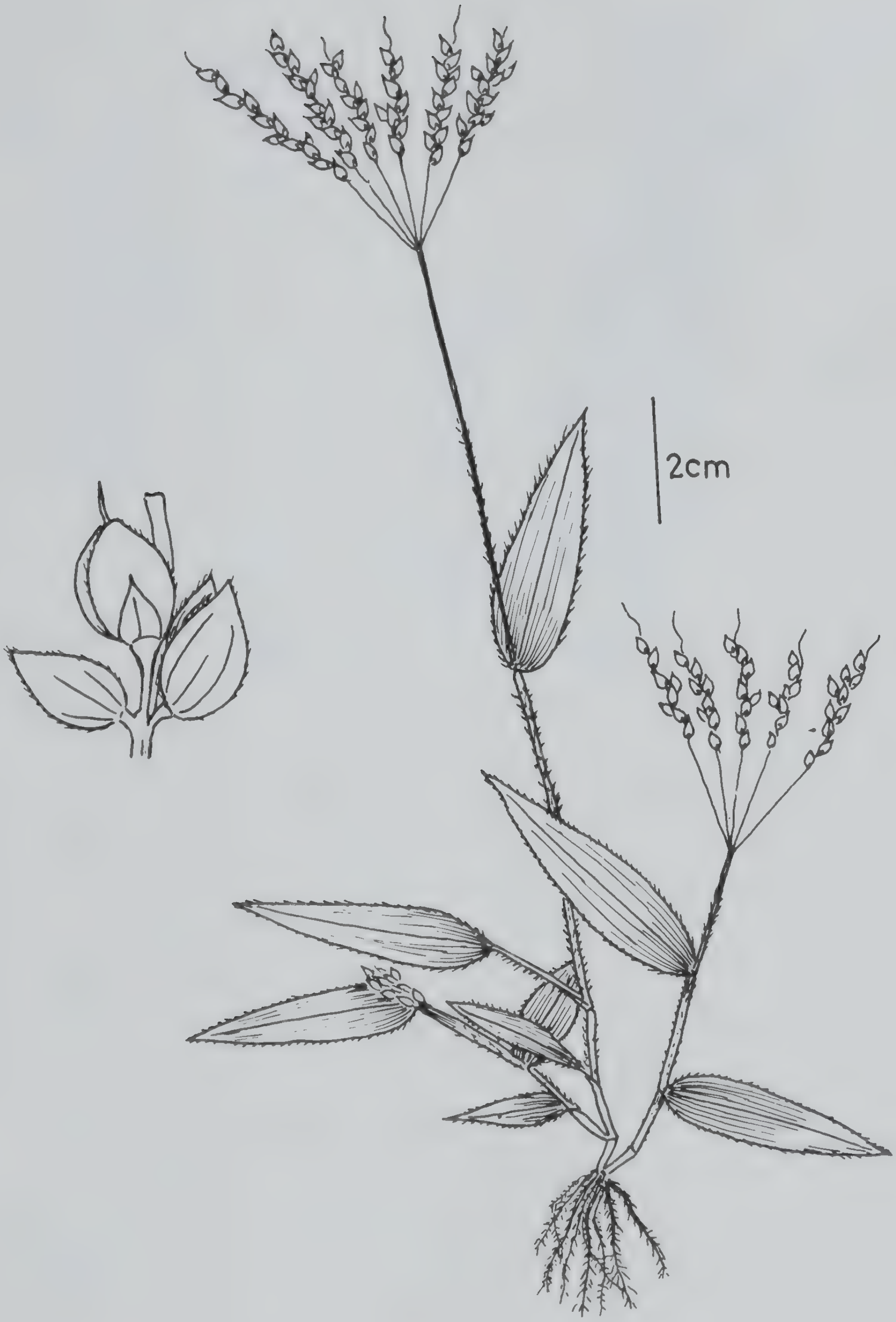
Fl. & Fr. : September to June.

Reference : FBI. 6:658; FUGP. 3:363; FD. 363; FID. 379; FBR. 245



81. POACEAE (GRAMINEAE)

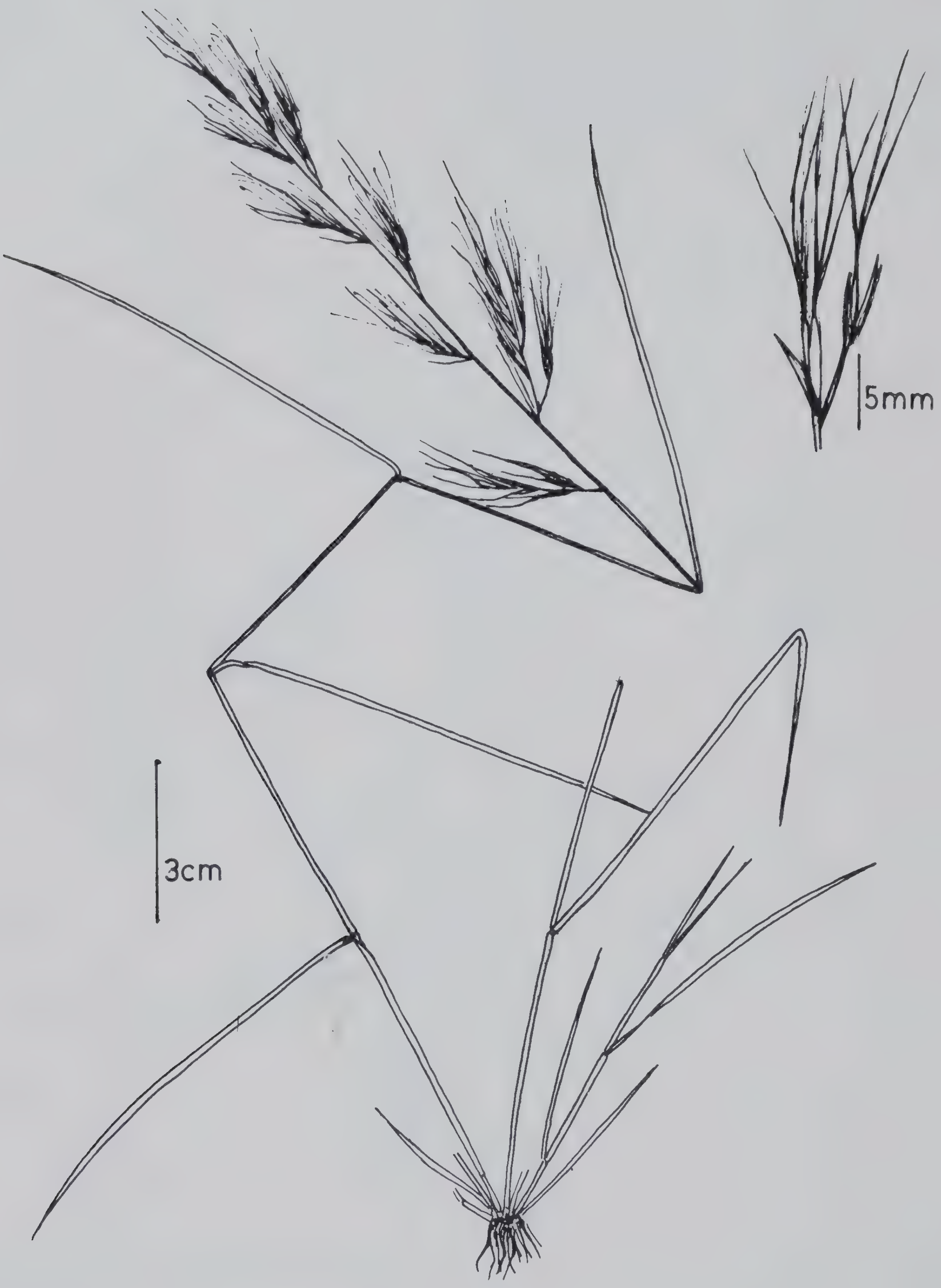
ACRACHNE Wt. & Arn. ex Chiov.
Acrachne racemosa (Heyne) Ohwi
Synonym : *Eleusine verticillata* Roxb.
Characteristics : An annual, tufted grass with grooved stems, up to 90 cm high. Leaves 6 to 25 cm long, linear-lanceolate, glabrous. Inflorescence comprised of 2 to many spikes arranged in whorls. Spikelets with 6 to 12 flowers. Grains oblong.
Habitat : Moist areas throughout the uplands; not common.
Fl. & Fr. : August to November.
Reference : FBI. 7: 295; FD.391; GM. 231; FNER.430



ALLOTEROPSIS Presl

Alloteropsis cimicina (L.) Stapf

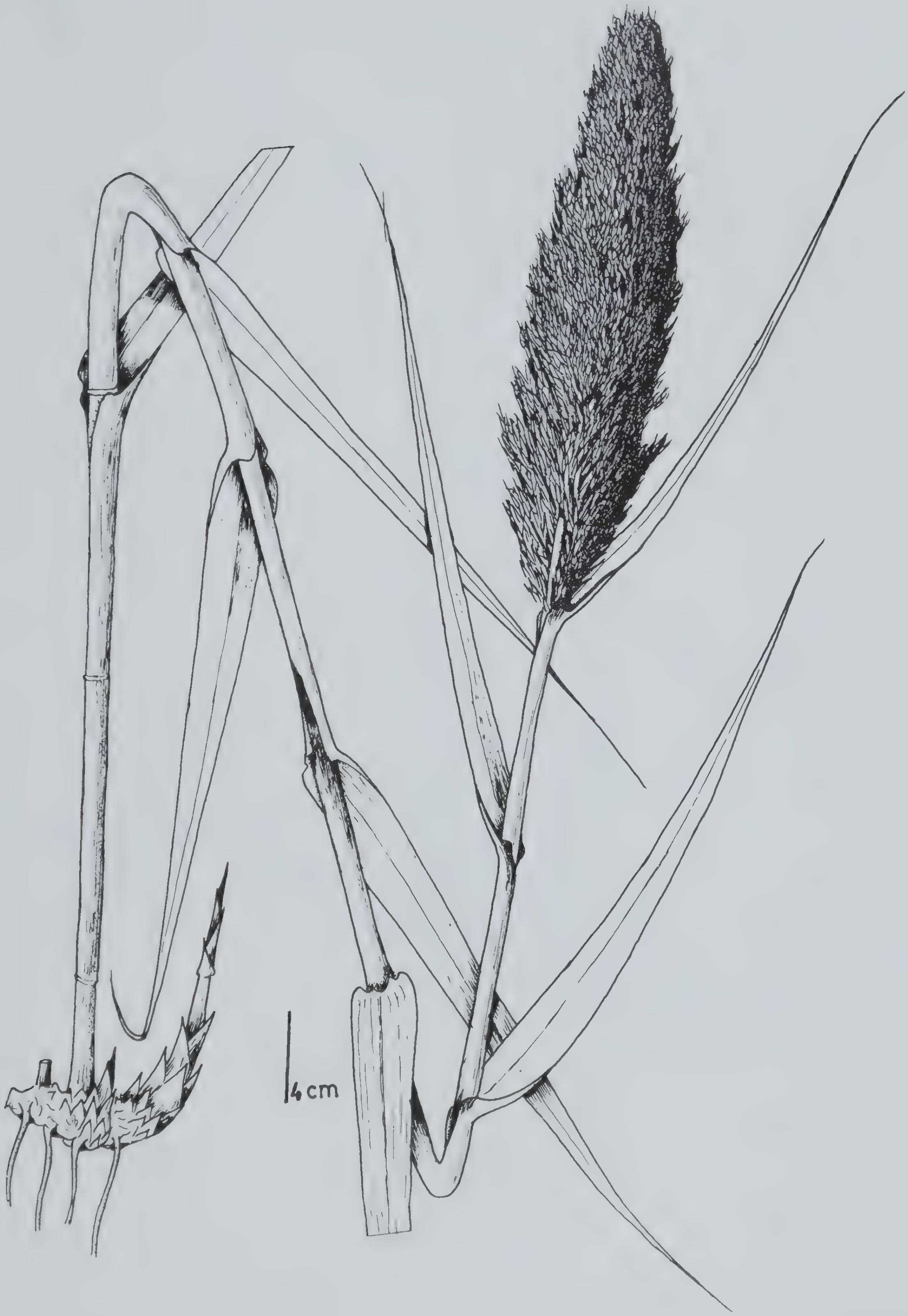
Synonym	:	*Axonopus cimicinus* P. Beauv.
Characteristics	:	An annual, erect or decumbent grass, up to 60 cm high. Culm and leaf margin clothed with long horizontal cilia. Leaves 3 to 6 cm long, ovate-lanceolate, acute at apex, cordate at base; margins with bulbous based cilia. Inflorescence comprised of 4 to 10 digitate, spike-like racemes, on the top of a slender hairy peduncle. Upper glume with long purplish hairs on the margin.
Habitat	:	Open grassland, scattered near Python point; not common.
Fl. & Fr.	:	July to November.
Reference	:	FBI. 7:64; FD. 387; FNER. 431; FBR.294



ARISTIDA L.

Aristida adscensionis L.

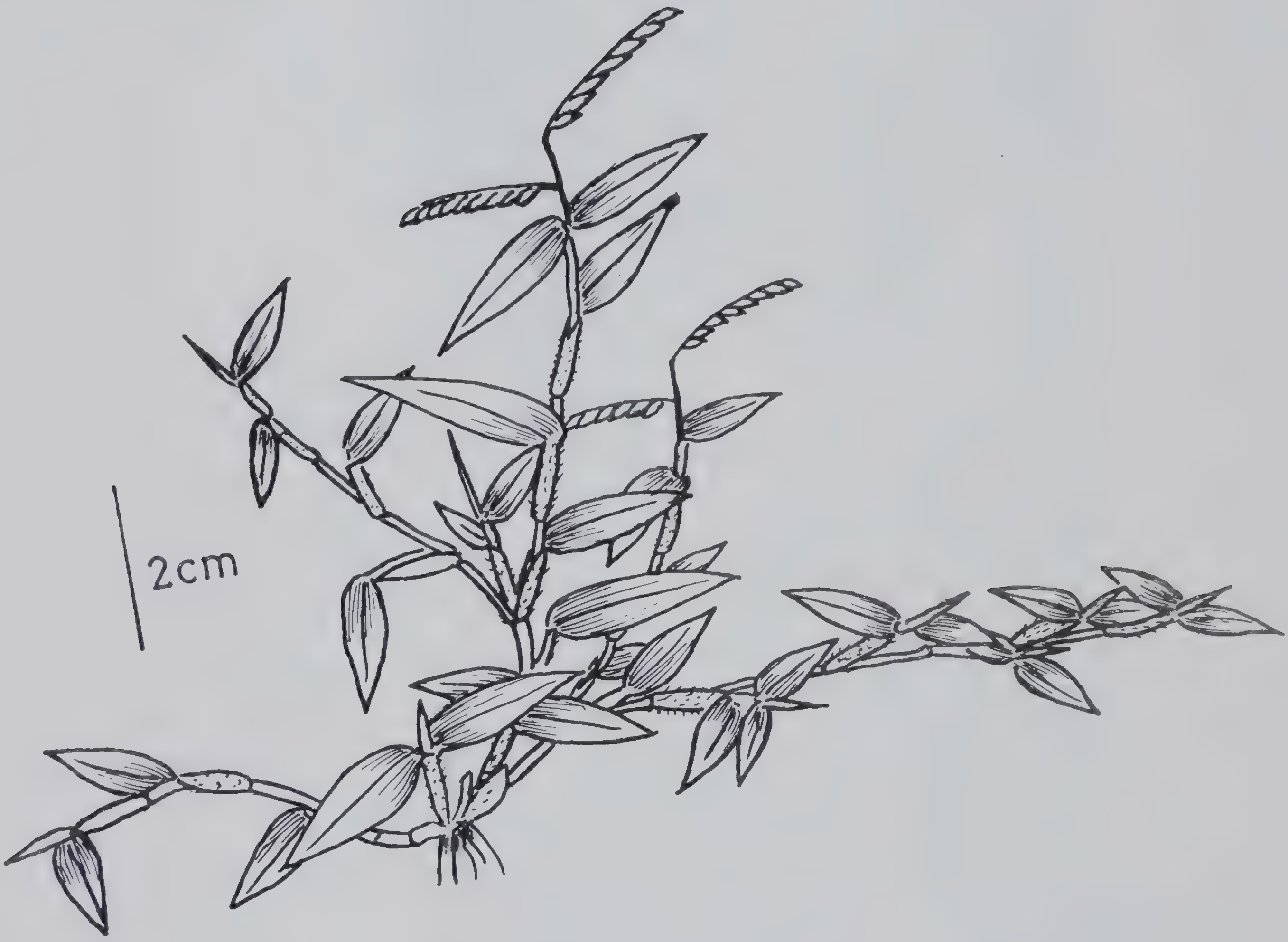
Characteristics	:	A tufted, annual or perennial with slender, erect or ascending stem, up to 60 cm high. Leaves 7 to 30 cm long, 1 to 2 mm wide, narrowly linear. Ligule comprised of short hairs. Inflorescence a narrow, linear, spike-like panicle. Spikelets with long awn. Awn tripartite central one longer than the lateral ones.
Habitat	:	Dry, sandy soil; common after rainy season.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7:224; FD. 398; FNER. 433; FBR. 250



ARUNDO L.

Arundo donax L.

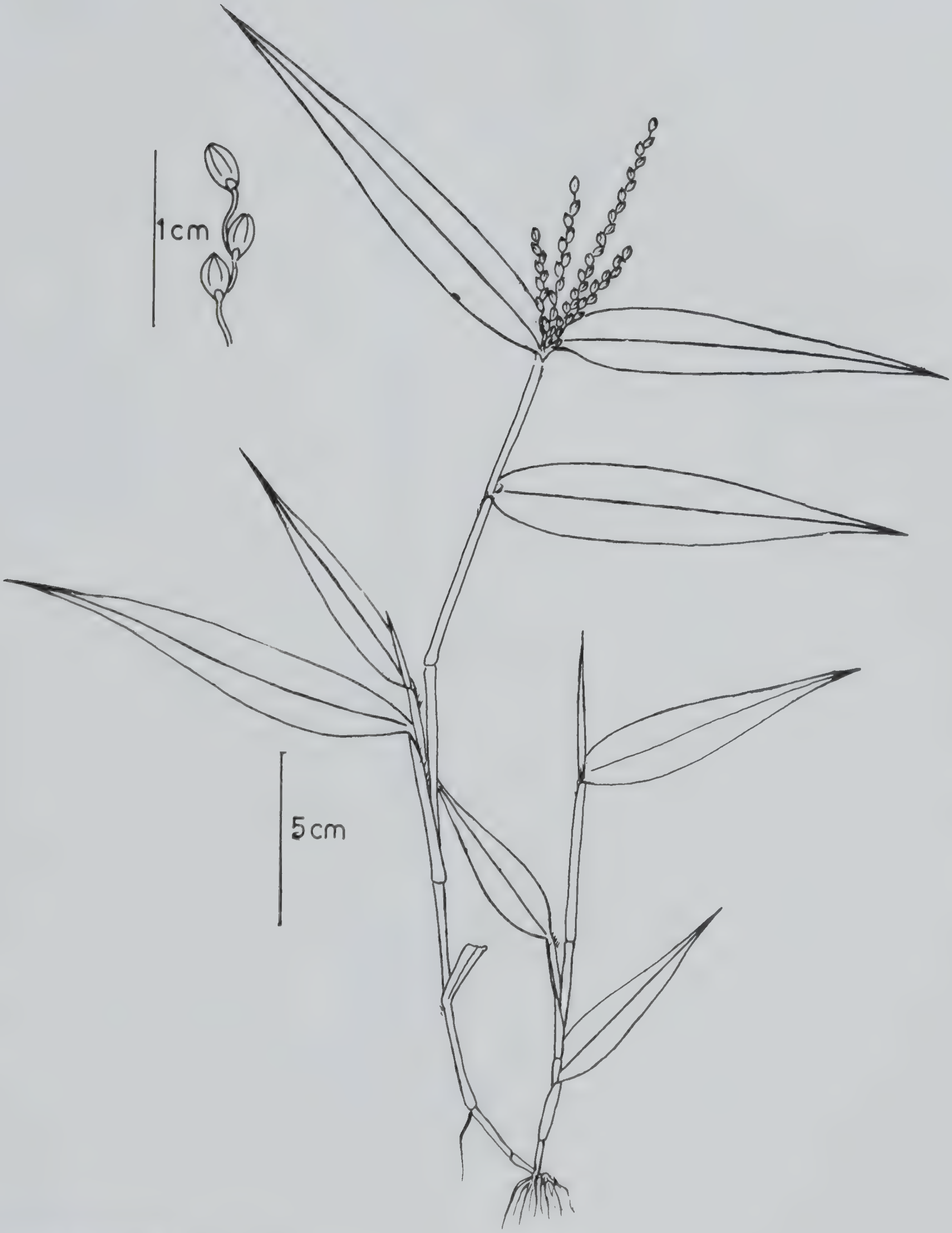
Characteristics	:	A tall, perennial grass up to 6 m high. Stems hollow, smooth, many noded. Leaves 30 to 60 cm long, linear-lanceolate, tapering to the tip. Ligule comprised of stiff hairs. Inflorescence a large, terminal, plumose panicle, up to 60 cm long. Spikelets light brown, usually 2-flowered.
Habitat	:	Probably planted; found near Forest Lodge.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7: 302; FD. 373; GM. 203; FNER. 436



BRACHIARIA Griseb.

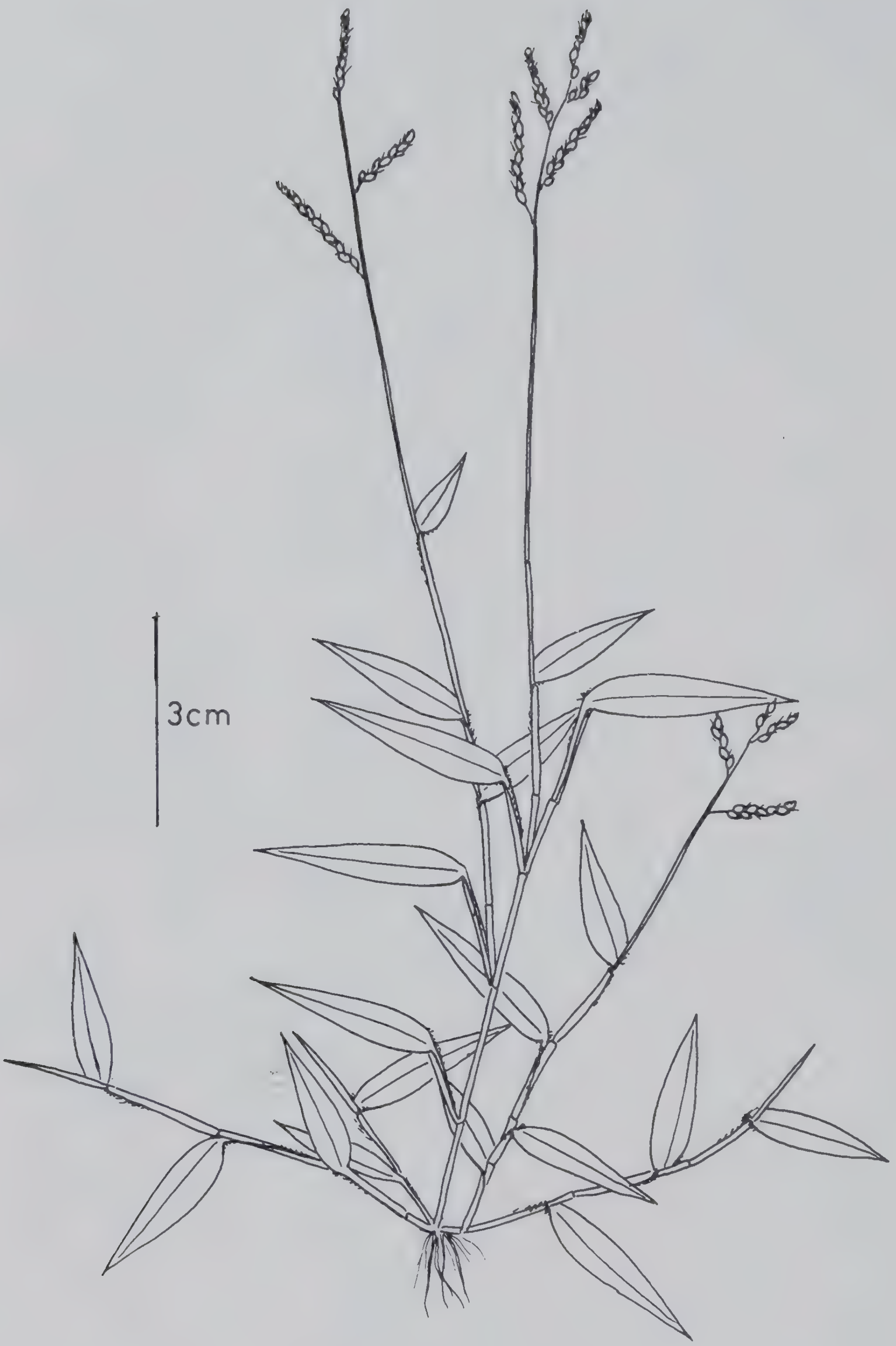
Brachiaria distachya (L.) Stapf

Characteristics	:	A slender, annual grass with decumbent stem, up to 50 cm high. Leaves 2 to 4 cm long, 0.7 to 1 cm wide, linear-lanceolate, round or amplexicaule at base. Inflorescence comprised of 2 to 4 spikes, each 2 to 2.5 cm long. Spikelets solitary, elliptic-obovate, glabrous.
Habitat	:	Open grasslands.
Fl. & Fr.	:	August to December.
Reference	:	FD. 398; GM.131



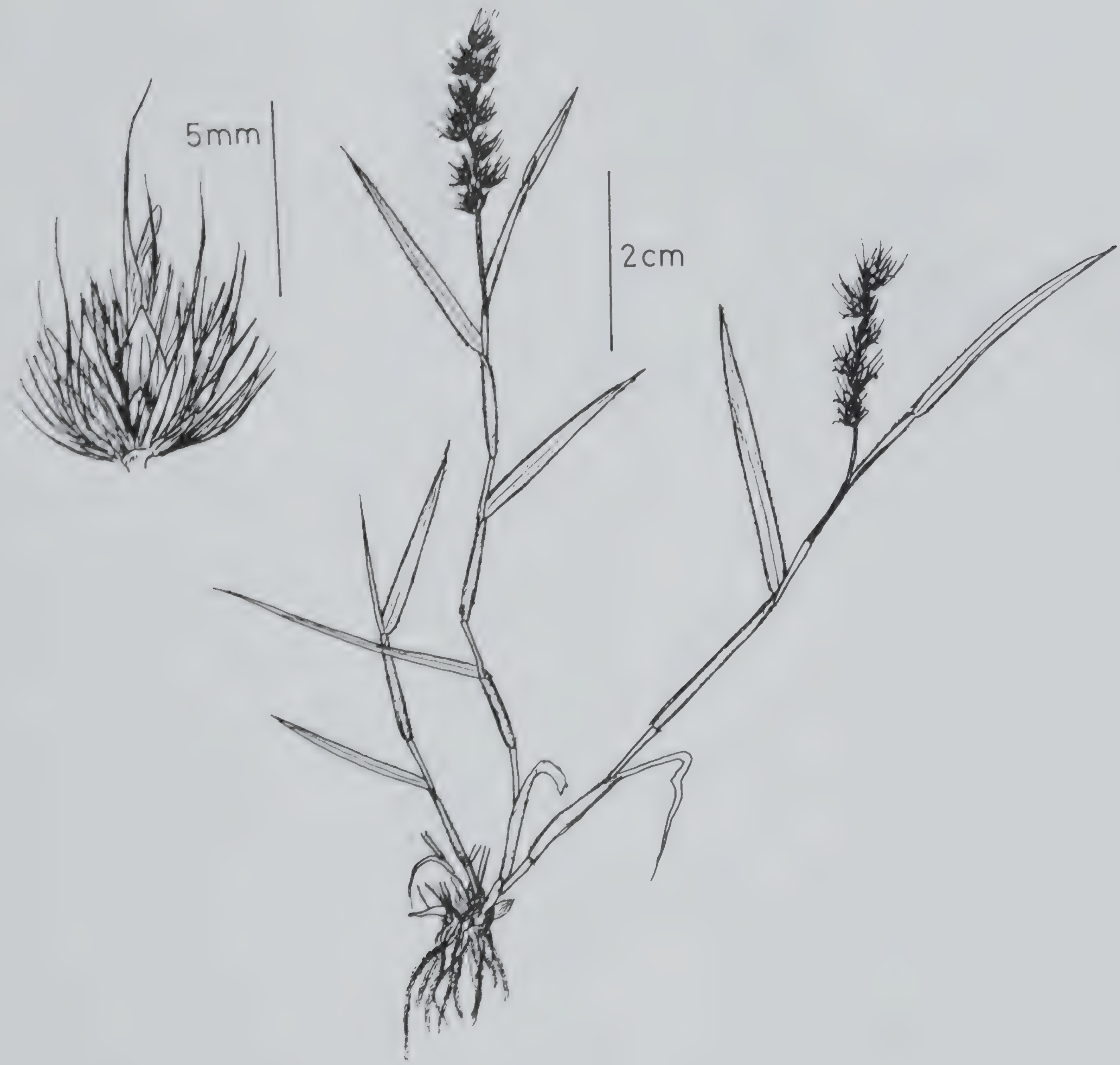
Brachiaria ramosa (L.) Stapf

Synonym	:	*Panicum ramosum* L.
Characteristics	:	An annual grass with decumbent or ascending stems, branching from the base. Leaves 5 to 12 cm long, 1 to 3 cm wide, linear-lanceolate, rounded at base. Ligule comprised of short white hairs. Raceme 3 to 7 cm long, 5 to many on each stem. Spikelets alternate, ovoid. Caryopsis (fruit) broad, elliptic.
Habitat	:	Frequently seen in moist soil.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7:36; FD. 397; GM. 134; FNER. 439



Brachiaria reptans (L.) Gard. & Hubb.

Synonym	:	*Panicum prostratum* Lamk.
Characteristics	:	A creeping annual grass with ascending stem, rooting at nodes. Leaves lanceolate to ovate, cordate at base, acuminate at tip; margin thickened, whitish. Racemes 5 to 9 on a panicle. Spikelets paired, ovoid or ellipsoid, acute at tip.
Habitat	:	Frequently seen in moist soil after rainy season.
Fl. & Fr.	:	July to November.
Reference	:	FBI. 7:33; FD. 397; GM. 135; FID. 391; FNER. 439



CENCHRUS L.

Cenchrus ciliaris L.

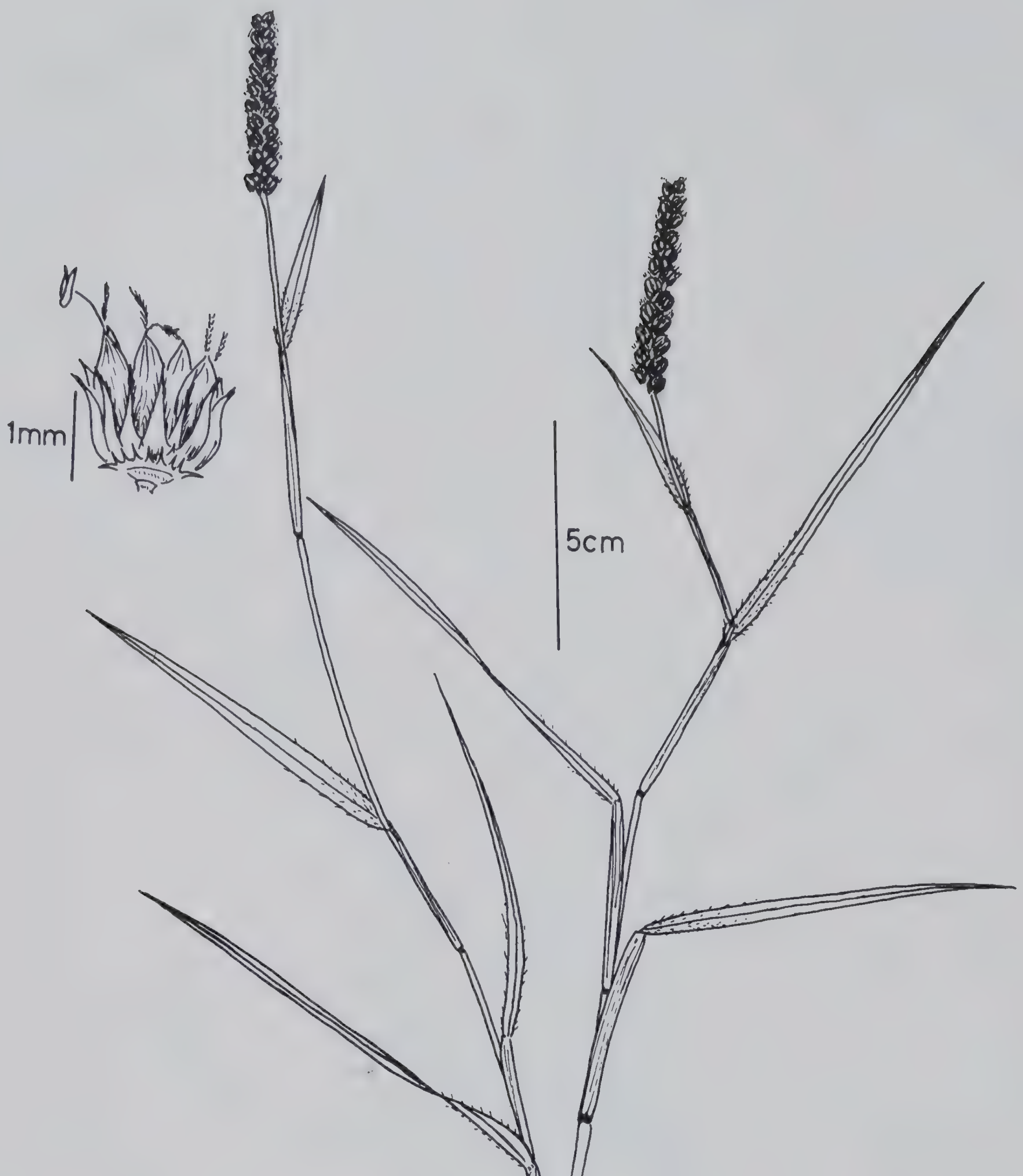
Synonym : *Pennisetum cenchroides* Rich.

Characteristics : A tufted, perennial grass with woody basal portion. Leaves linear, tapering at apex. Ligule a ciliate rim. Inflorescence a pale or purplish, 2 to 14 cm long, spike-like, cylindrical raceme. Spikelets 4 to 5 mm long, antrorsely ciliate on margins, with many bristles. Outer bristle about same size of the spikelet.

Habitat : Scattered throughout the uplands and along the roadsides.

Fl. & Fr. : August to December.

Reference : FBI. 7:88; FD. 377; FNER. 441; FBR. 254



Cenchrus setigerus Vahl

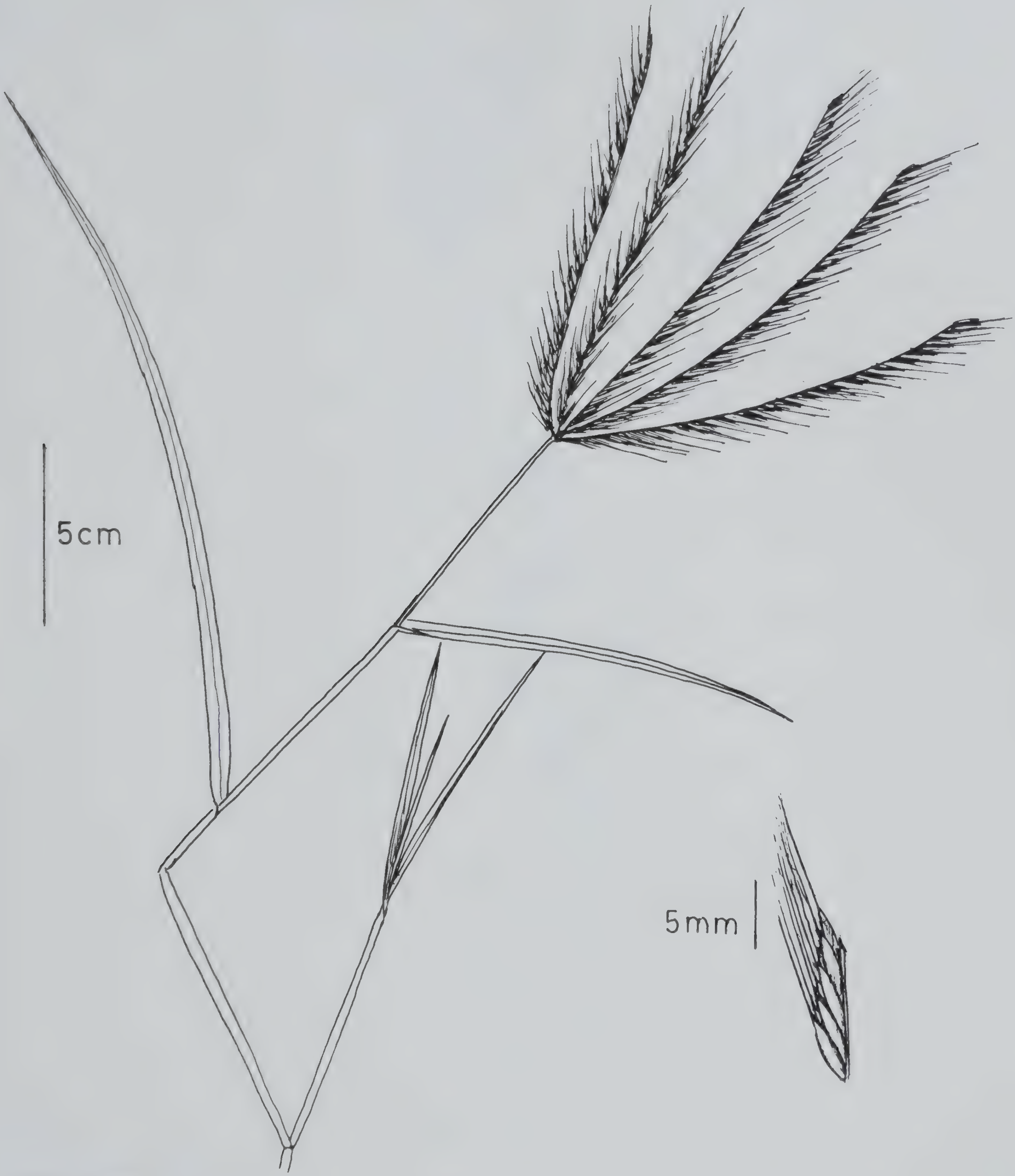
Synonym : *C. biflorus* sensu Hook. f., non Roxb.

Characteristics : An annual or perennial, tufted grass with erect or ascending stem, up to 50 cm high. Leaves 5 to 25 cm long, linear-lanceolate, glabrous or with long hairs. Ligule a ciliate rim. Inflorescence a spike-like cylindric raceme, 2 to 10 cm long, green, turning black at maturity. Spikelets ovate-oblong, 2 flowered.

Habitat : Common in sandy soil.

Fl. & Fr. : August to December.

Reference : FBI. 7:89; FD. 377; GM. 137; FNER. 443



CHLORIS Sw.

Chloris dolichostachya Lagasca

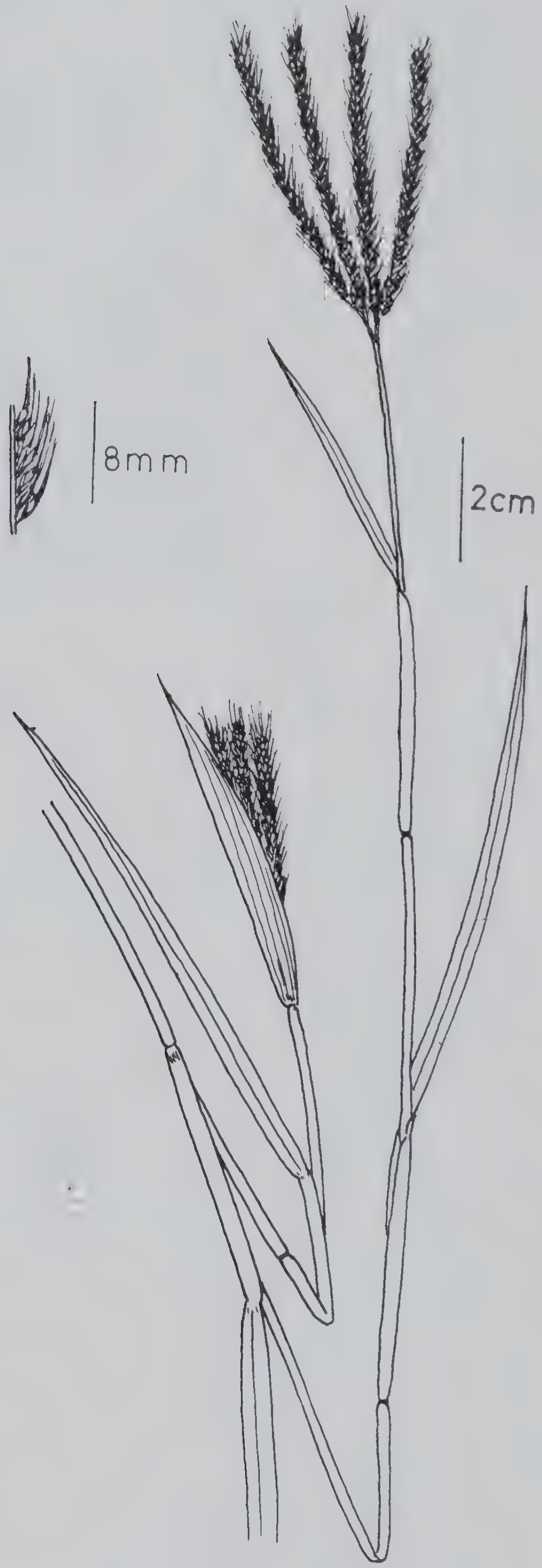
Synonym : *C. incompleta* Roth

Characteristics : A tufted, perennial, 60 to 120 cm high. Leaves 8 to 30 cm long, linear; sheath hairy. Inflorescence usually of 5 digitate, spreading spikes. Spikelets 6 to 7 mm long, awned, 2 rowed.

Habitat : Scattered throughout the uplands in moist soil.

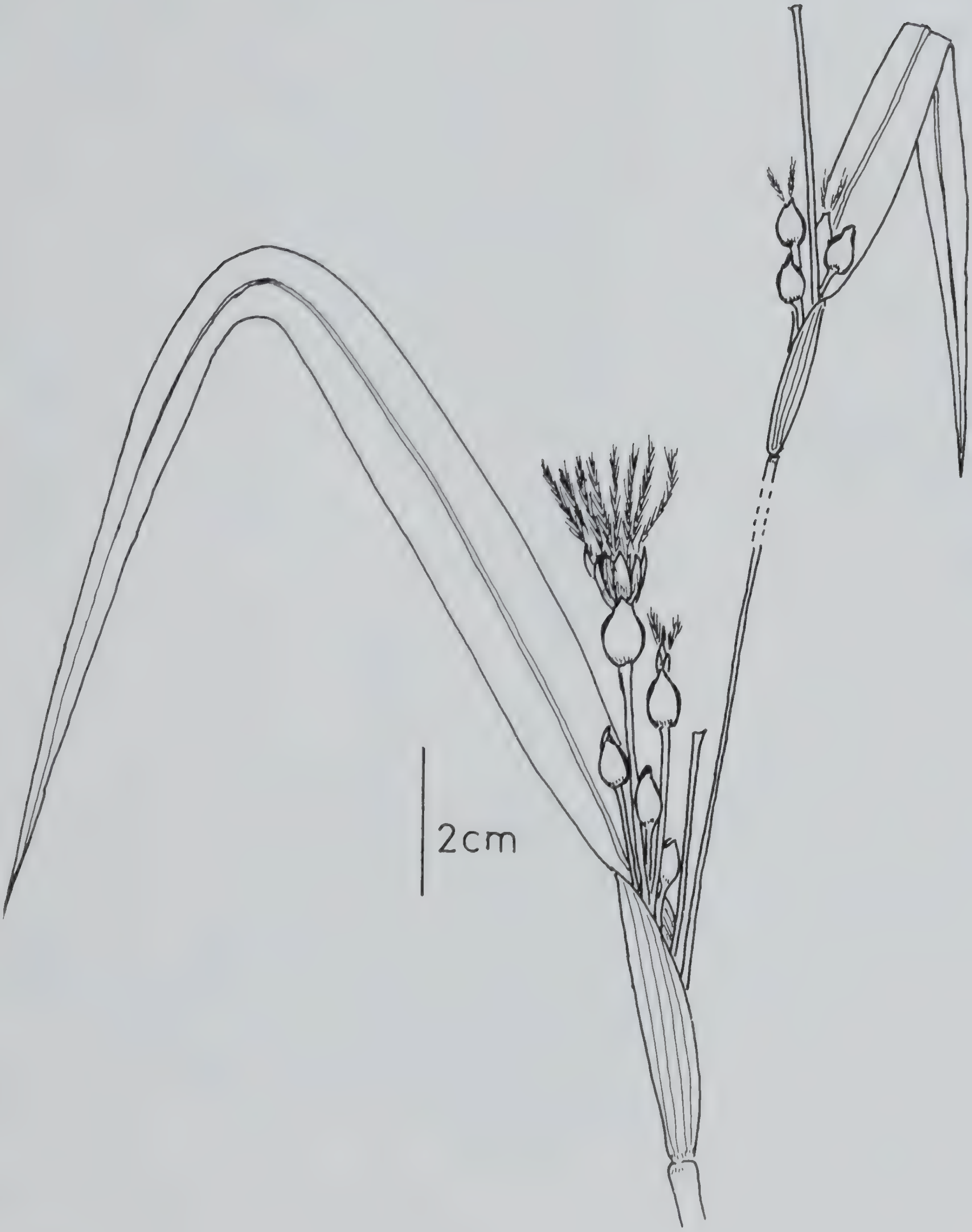
Fl. & Fr. : August to December.

Reference : FBI. 7: 290; FD. 387; GM. 215; FNER. 444



Chloris quinquesetica Bhide

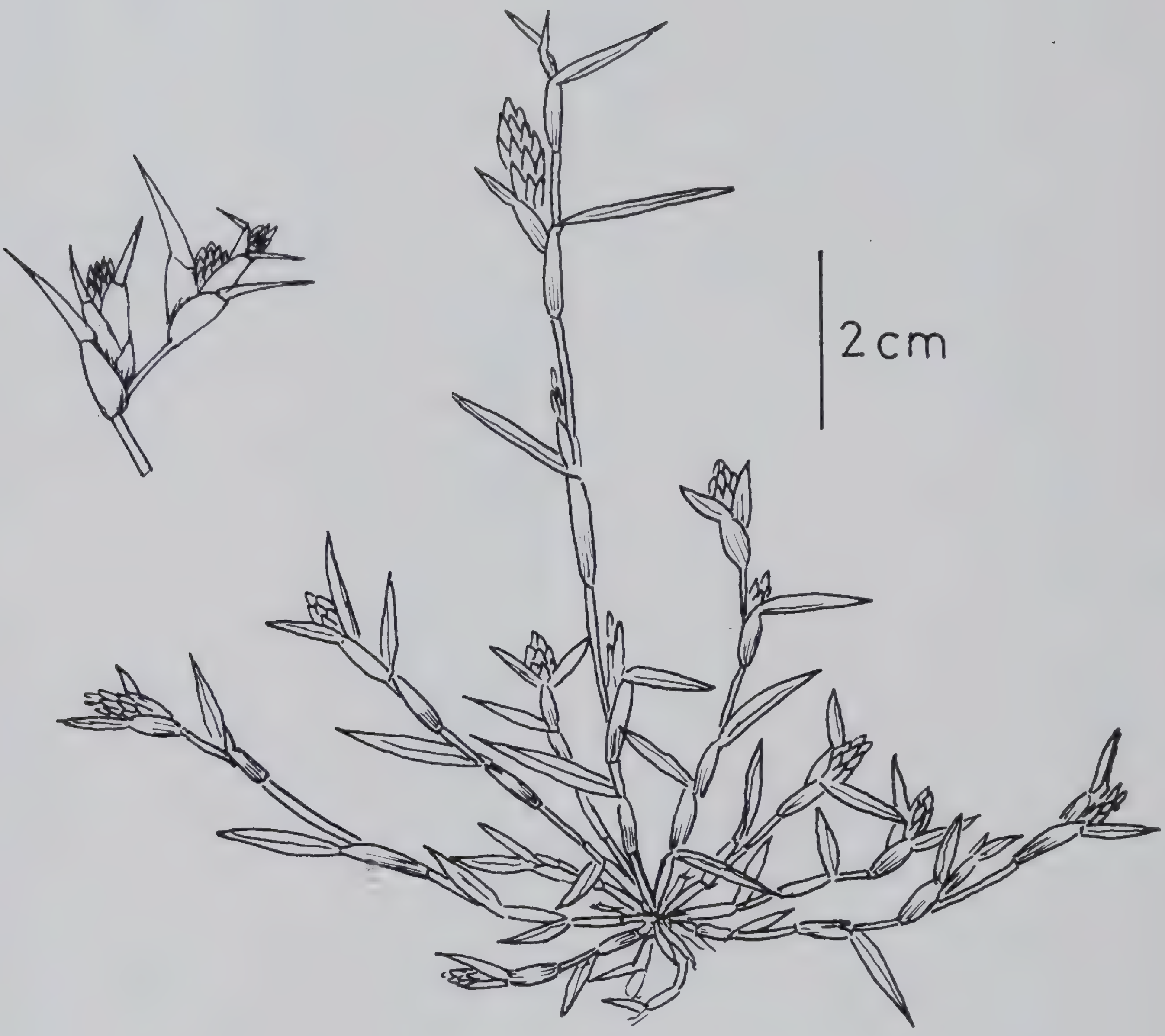
Characteristics	:	A perennial grass, rooting at lower nodes. Stem 40 to 60 cm high. Leaves up to 15 cm long, become glabrous by age. Inflorescence comprised of 4 to 18 spike-like racemes, each 2.5 to 5 cm long. Spikelets with one functional flower and 5 awns.
Habitat	:	Sandy soil.
Fl. & Fr.	:	August to December.
Reference	:	FID. 397



COIX L.

Coix lacryma-jobi L.

Characteristics	:	A tall, erect, annual or perennial, often rooting at lower nodes. Leaves glabrous, basal sheath bristly. Spikelets arranged in axillary or terminal racemes. Flowers unisexual with male and female flowers occurring on same peduncle. Female flowers at the base of peduncle enclosed by a globose involucre which become bony and whitish with age.
Habitat	:	Margin of monsoonal pools; common in Ghana canal near Chitalvan area.
Fl. & Fr.	:	December to May.
Reference	:	FBI. 7: 100; HFD. 595; GM. 124; FBR. 257



CRYPSIS Ait.

Crypsis schoenoides (L.) Lamk.

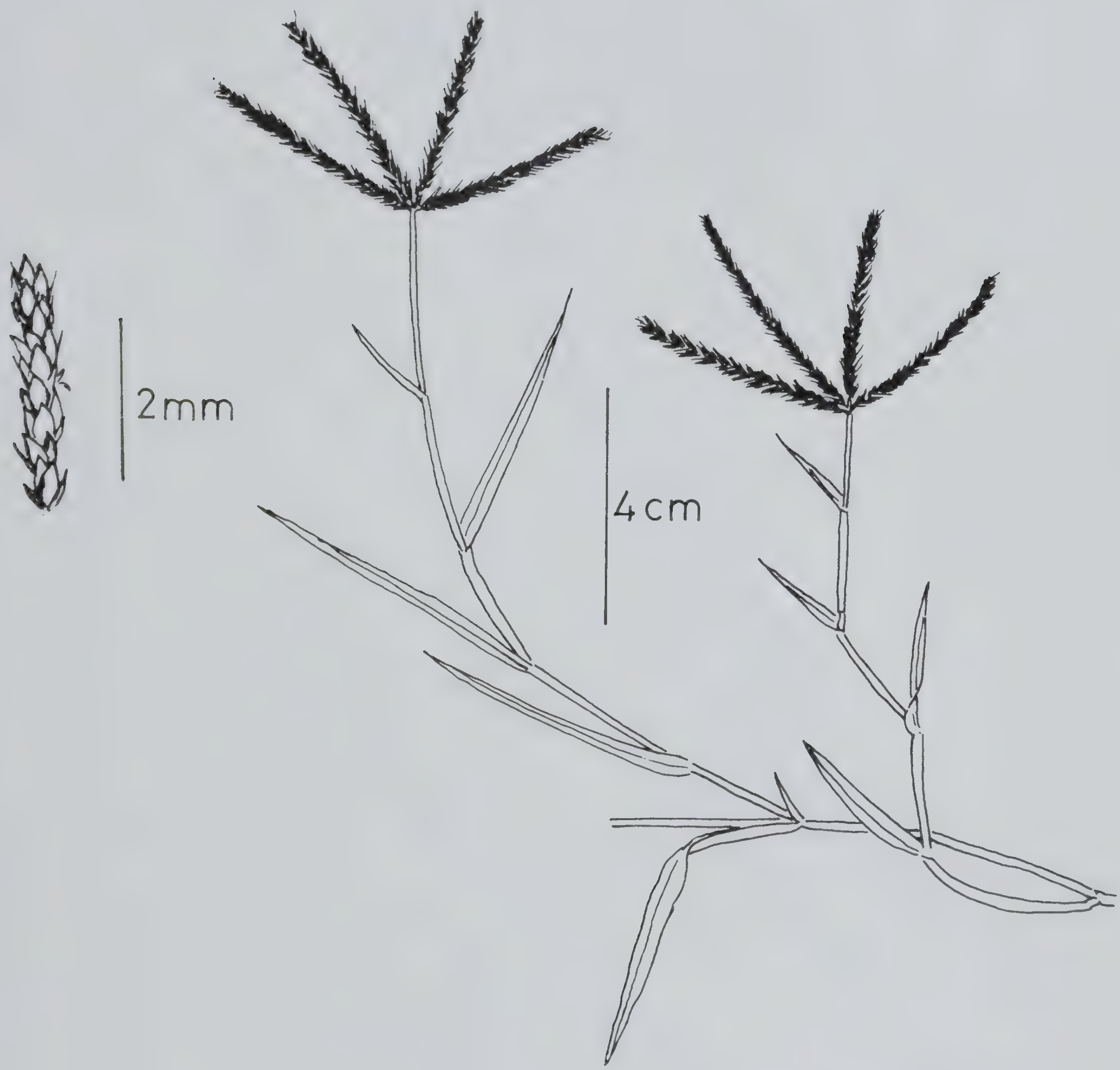
Synonym : *Heleochloa schoenoides* Host

Characteristics : A prostrate annual with glabrous stem, up to 15 cm long. Leaves 2.5 to 4.5 cm long, narrowly lanceolate, acuminate at apex. Panicle spike-like, ovoid-oblong. Spikelets densely imbricate, 3 mm long. Grains 1 mm long, oblong, ellipsoid.

Habitat : Mudflats of drying monsoonal pools.

Fl. & Fr. : October to February.

Reference : FBI. 7:235; FID. 398; FTD. 218



CYNODON Rich. ex Pers.
Cynodon dactylon (L.) Pers.

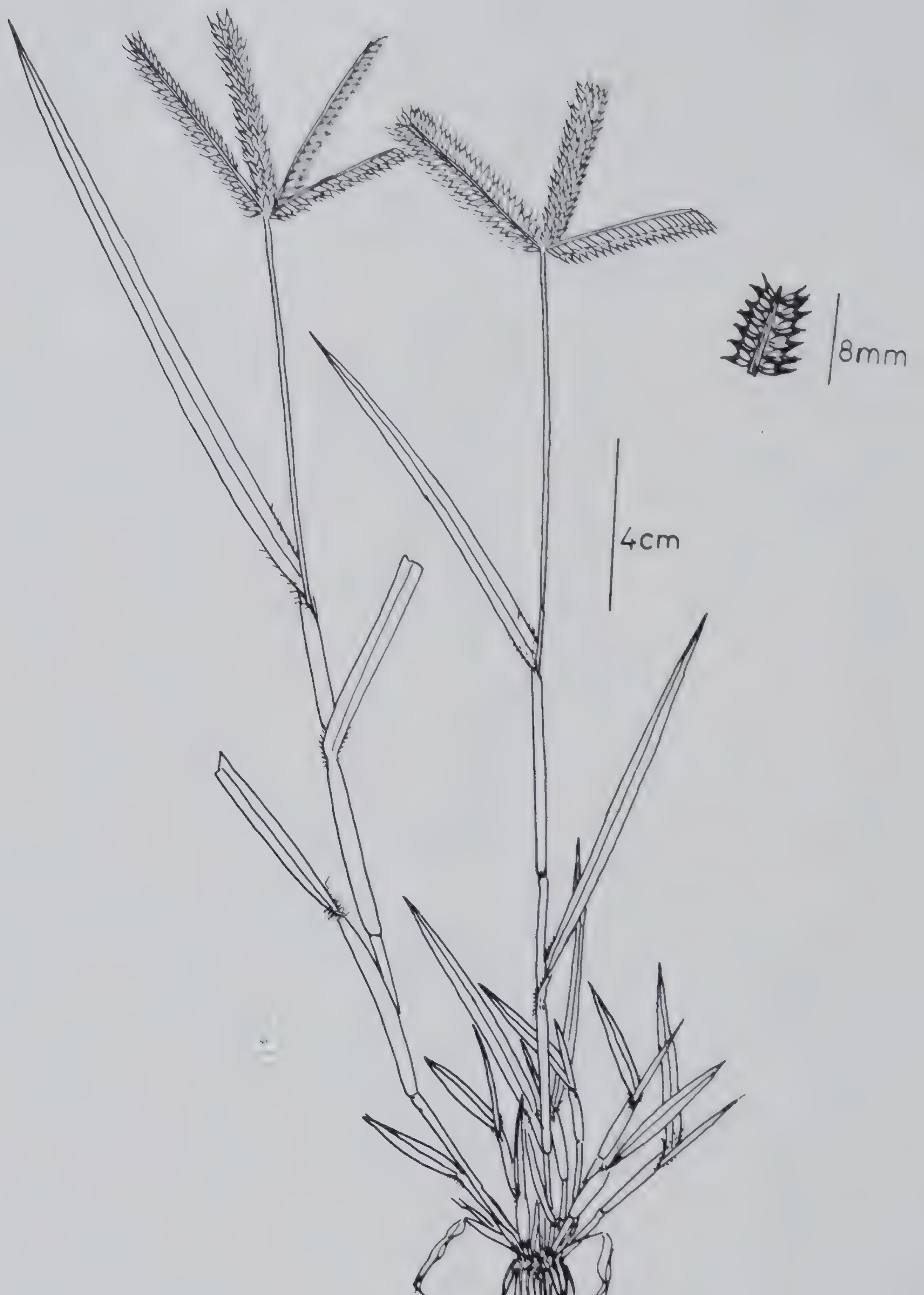
Local name : Ghur-dubh

Characteristics : A rhizomatous, creeping, perennial grass, rooting at nodes. Stems slender, many noded, wiry. Leaves 2 to 5 cm long, 3 to 4 mm wide, linear, acuminate at apex. Ligule a finely hairy rim. Inflorescence comprised of 4 to 5 digitate spikes, up to 5 cm long, green or purplish. Spikelets sessile, compressed.

Habitat : Common in moist soil and edges of aquatic area.

Fl. & Fr. : Throughout the year.

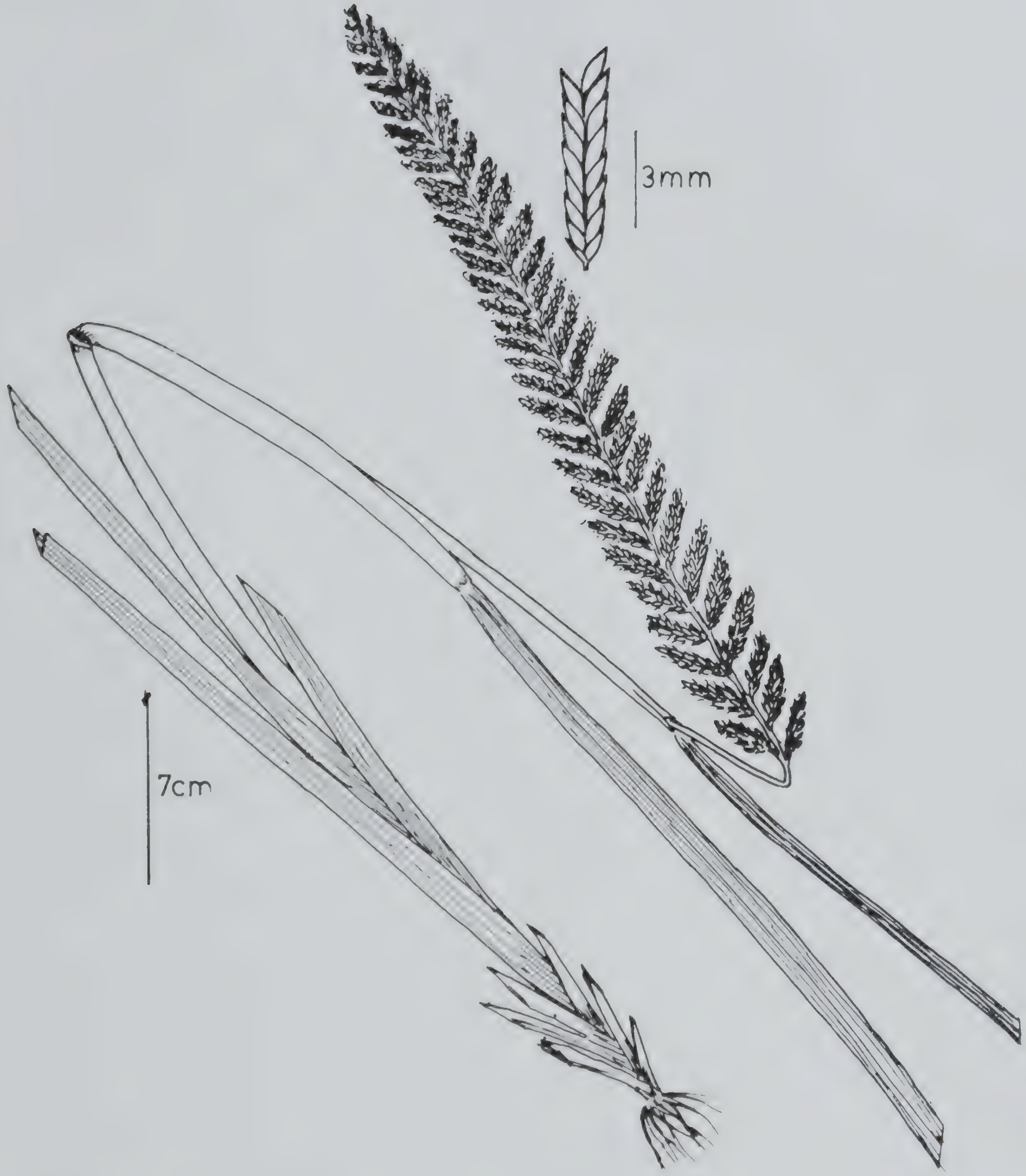
Reference : FBI. 7:288; FD. 390; FID. 401; FNER. 445; FTD. 220



DACTYLOCTENIUM Willd.

Dactyloctenium aegyptium (L.) P. Beauv.

Characteristics	:	An annual, decumbent grass rooting at the nodes. Leaves linear with bulbous based hairs. Inflorescence comprised of 2 to 6 digitate, 2 to 4.5 cm long spikes. Spikelets densely crowded. Grains obovoid-globose.
Habitat	:	Common along roadside after rainy season.
Fl. & Fr.	:	July to December.
Reference	:	FBI. 7:295; FD. 392; FID. 401; FNER. 447



DESMOSTACHYA Stapf

Desmostachya bipinnata (L.) Stapf

Synonym : *Eragrostis cynosuroides* P. Beauv.

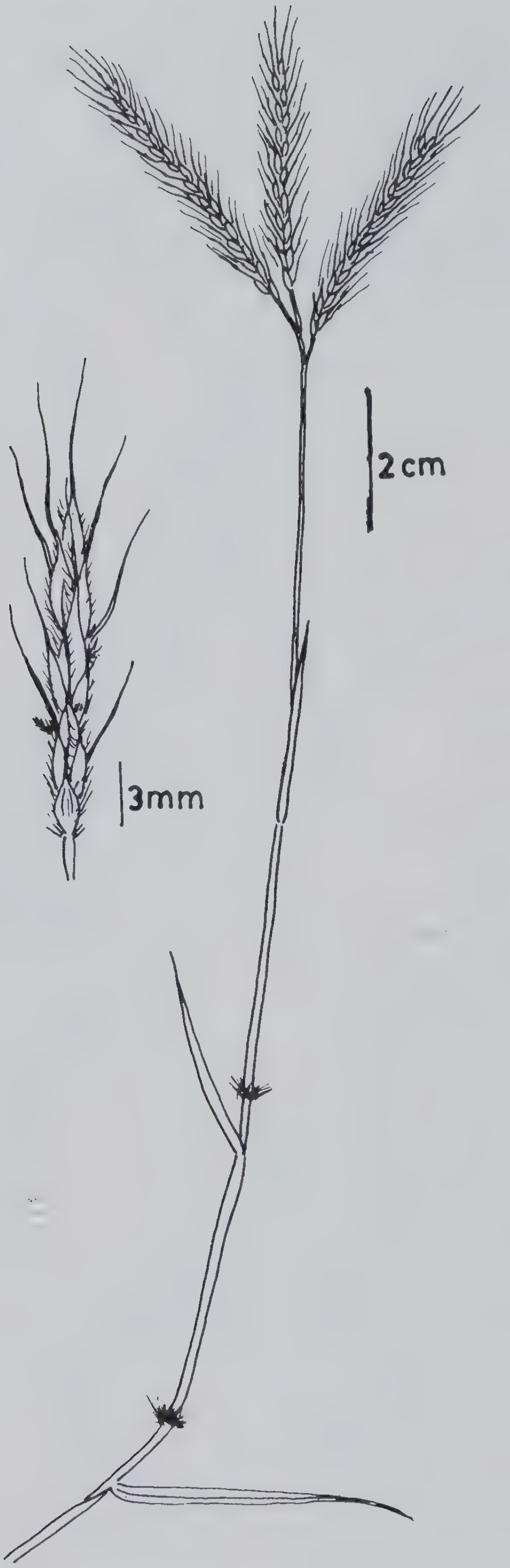
Local name : Dab

Characteristics : A rhizomatous, perennial grass, branching from the base, up to 150 cm high. Leaves up to 40 cm long, 1 cm wide, linear; margin scabrid. Inflorescence a narrow, pyramid shaped panicle, up to 55 cm long. Spikes many, crowded; spikelets sessile.

Habitat : Very common in grasslands of Koladhar area.

Fl. & Fr. : August to January.

Reference : FBI. 7:324; FD. 395; FID. 402; FNER. 449



DICHANTHIUM Willemet

Dichanthium annulatum (Forssk.) Stapf

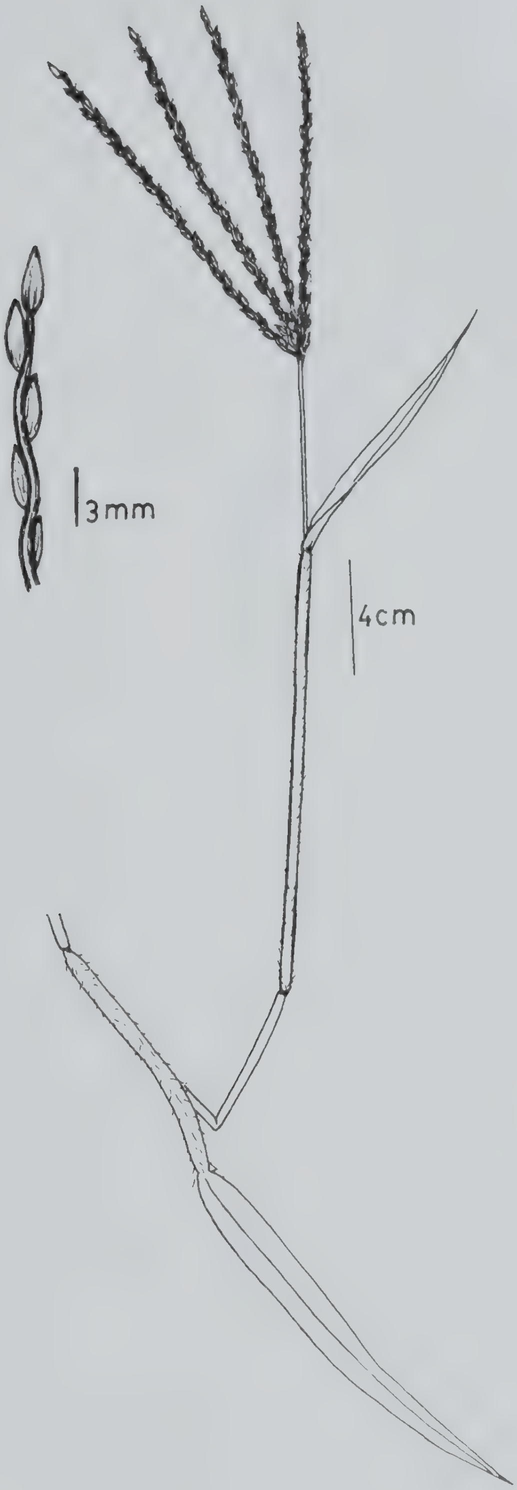
Local name : Gerga ghas

Characteristics : A tufted, perennial grass with erect or ascending stem. Nodes with a circle of white hairs. Leaves 6 to 30 cm long, 3 to 6 mm wide, narrowly linear. Ligule short, membranous. Racemes pinkish or grey, spike-like.

Habitat : Common along roadsides.

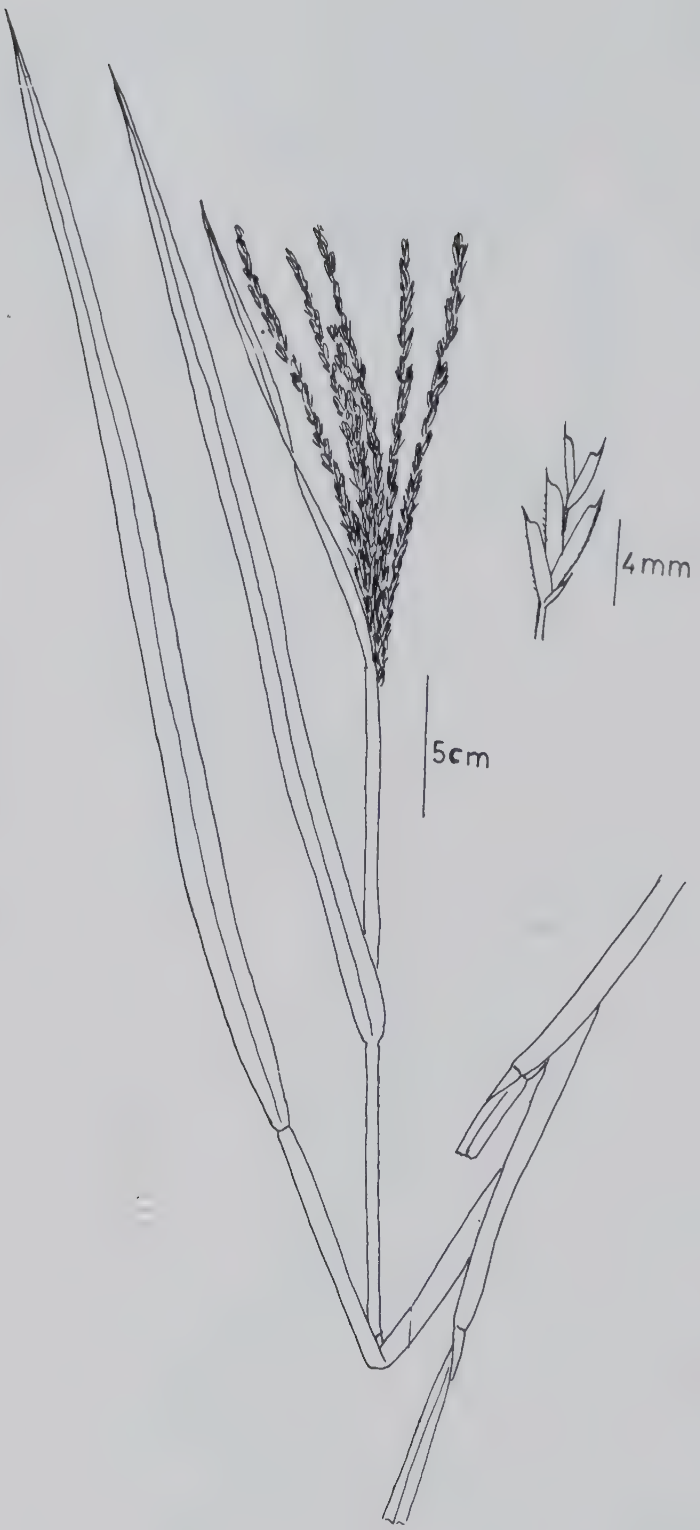
Fl. & Fr. : August to December.

Reference : FBI. 7:196; FD. 395; FID. 403; FNER. 450; FTD. 403



DIGITARIA Heist. ex Fabr.
Digitaria ciliaris (Retz.) Koel.

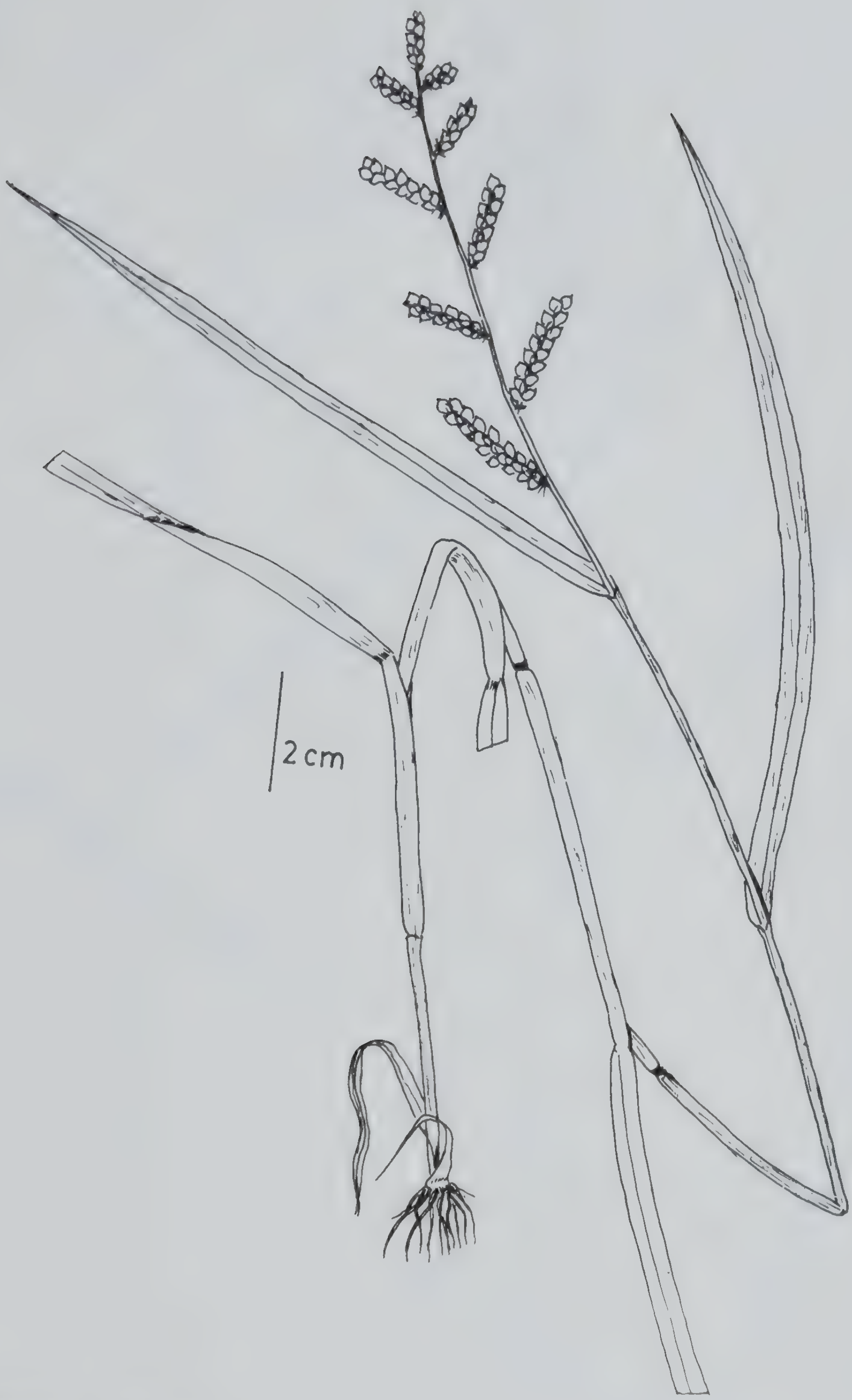
Synonym : *D. adscendens* (H. B. & K.) Henr.
Characteristics : An erect or decumbent, annual grass, up to 70 cm high. Leaves 3 to 10 cm long, 4 to 8 mm wide, linear-lanceolate. Ligule membranous. Inflorescence comprised of 2 to 8 digitate or alternate racemes, each 5 to 20 cm long. Spikelets paired, 2.5 to 3.5 cm long, oblong, acute at apex.
Habitat : Moist soil; common after rain.
Fl. & Fr. : July to December.
Reference : FD. 389; GM. 140; FID. 404; FNER. 451



DIPLACHNE P. Beauv.

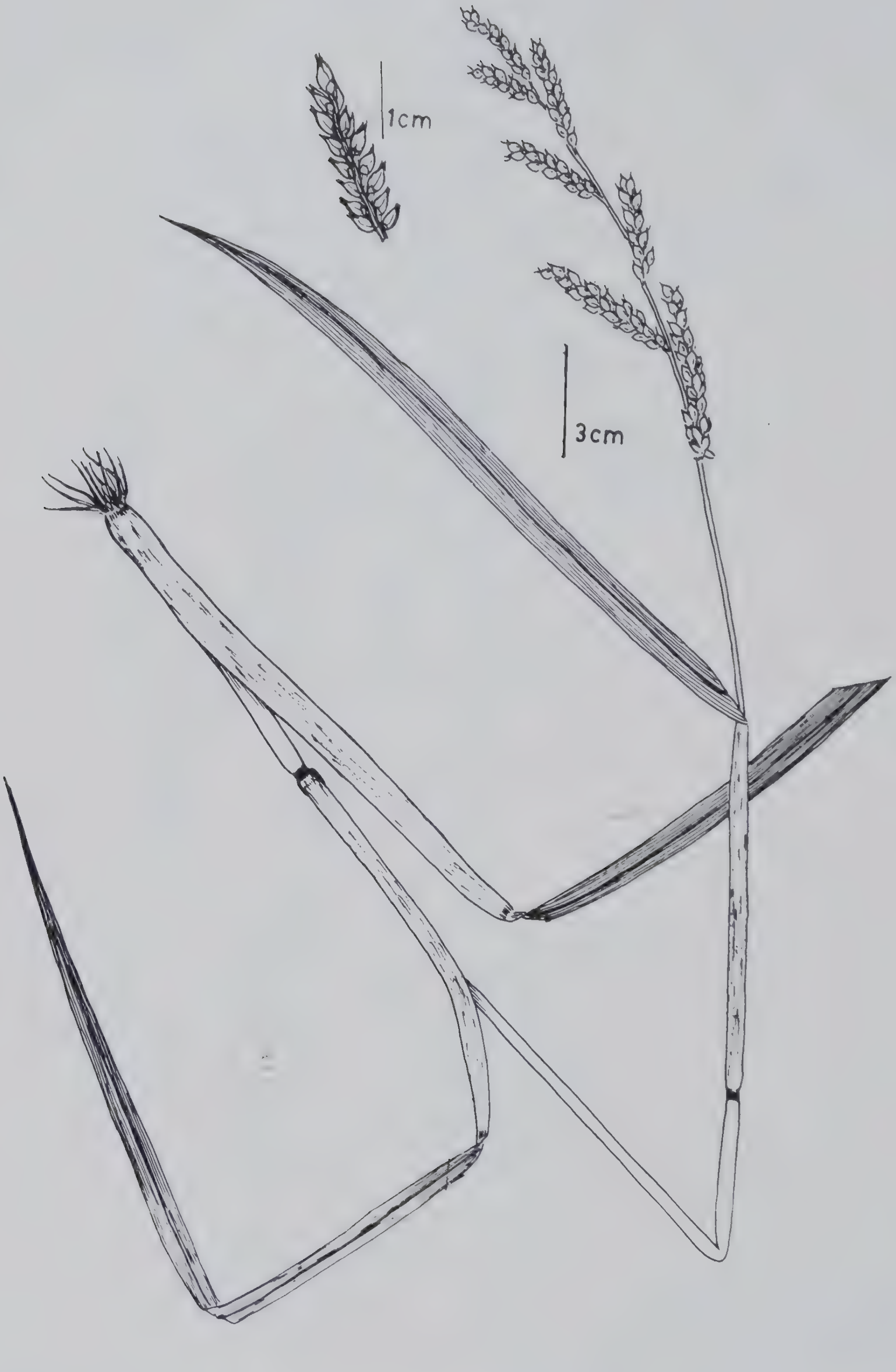
Diplachne fusca (L.) P. Beauv.

Characteristics	:	A tall grass with thick hollow stems and long, narrow, smooth leaves. Ligules membranous. Panicles with long erect branches. Spikelets linear, 4 to 10-flowered, very shortly pedicelled.
Habitat	:	Dried up marshy area; not common.
Fl. & Fr.	:	June to August.
Reference	:	FBI. 7:329; BBO. 4:962



ECHINOCHLOA P. Beauv.
Echinochloa colonum (L.) Link

Synonym : *Panicum colonum* L.
Local name : Sama
Characteristics : An annual, erect or ascending grass up to 60 cm high. Leaves 10 to 20 cm long, 5 to 7 mm wide, lanceolate, scabrous on margin. Ligule absent. Inflorescence a raceme of 8 to 20 sessile spikes. Spikelets paired, crowded. Grains plano-convex.
Habitat : Moist soil or shallow water areas; common along margins of aquatic areas and in monsoonal pools.
Fl. & Fr. : August to December.
Reference : FBI. 7:32; FD. 393; GM. 145; FID. 406; FNER. 455; FBR. 263



Echinochloa crusgalli (L.) P. Beauv. var. **breviseta** (Doell.) Nielr.

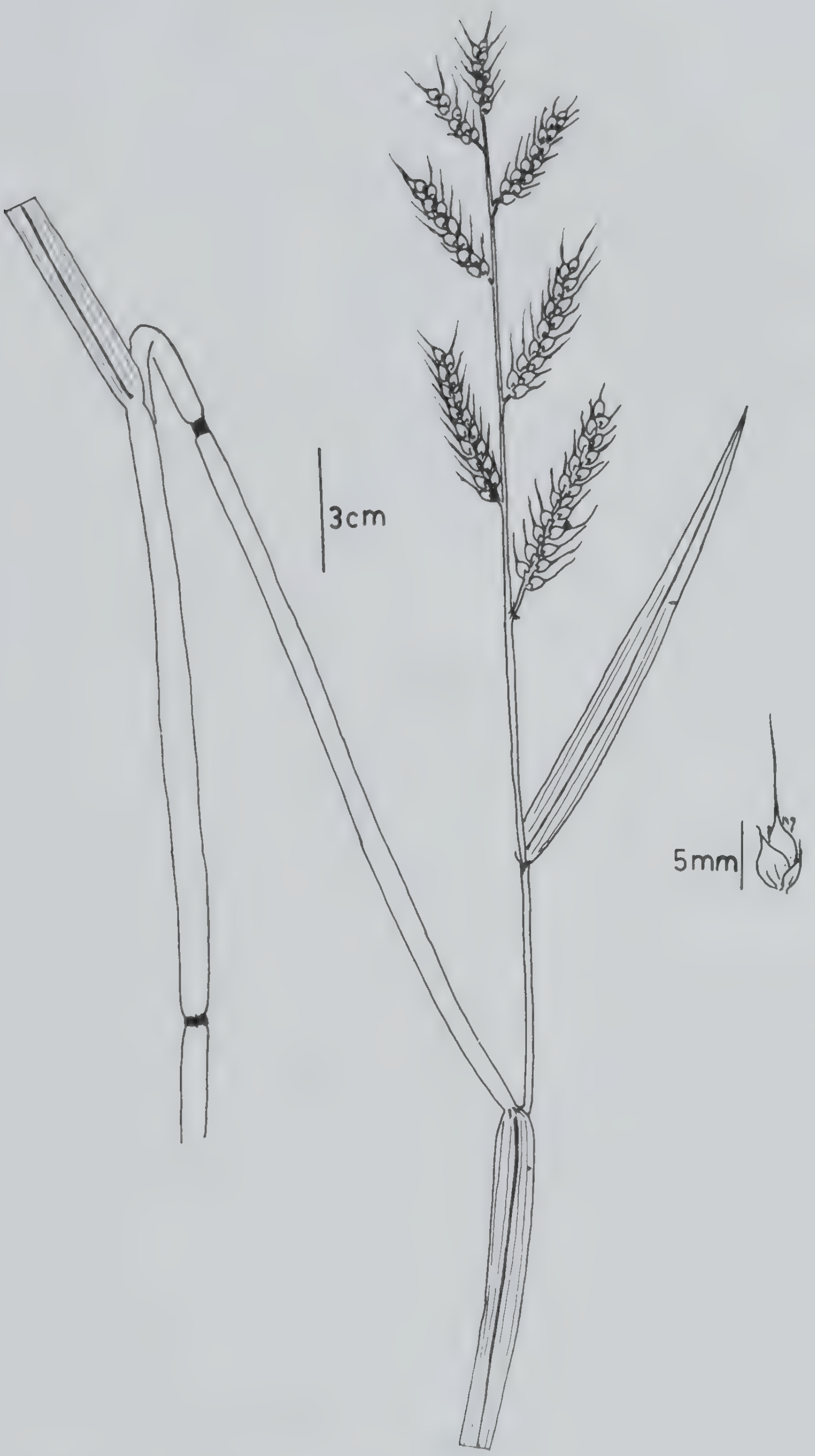
Local Name : Sama

Characteristics : An erect to decumbent annual, rooting at lower nodes. Leaves glabrous on surface, scabrous at margin. Ligule absent. Inflorescence a raceme of spikes. Spikelets with bulbous based white hairs. Lemma not with a long awn.

Habitat : Monsoonal pools and margins of aquatic area.

Fl. & Fr. : August to December.

Reference : FTD. 224



Echinochloa crusgalli (L.) P. Beauv. var. **crusgalli**

Synonym : *Panicum crusgalli* L.

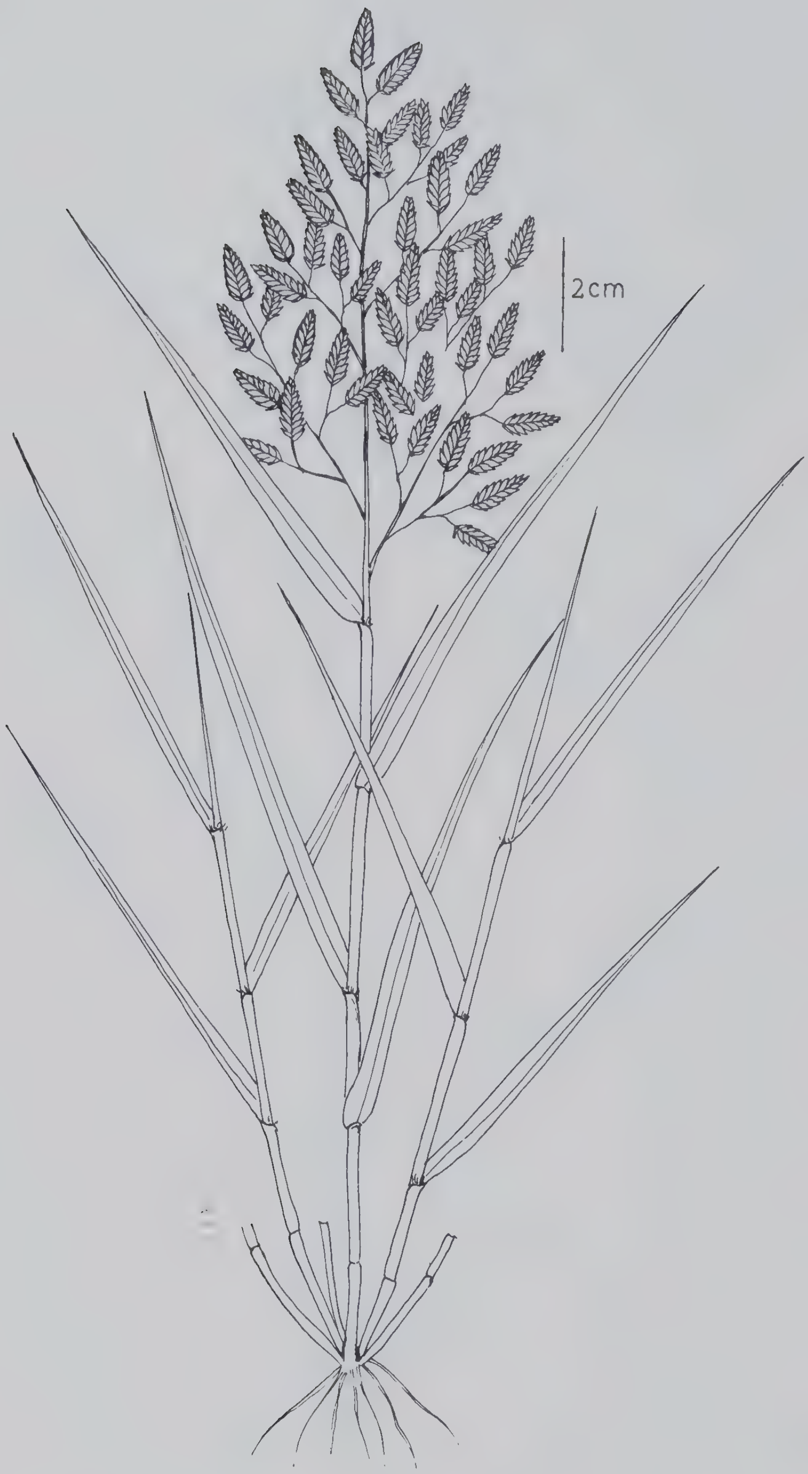
Local name : Sama

Characteristics : An erect or decumbent grass, often creeping below, commonly rooting at lower nodes. Leaves 10 to 20 cm long, linear. Ligule absent. Inflorescence a raceme of spikes. Spikelets crowded, ovate-elliptic. Lemma with a long awn. Grains broadly elliptic.

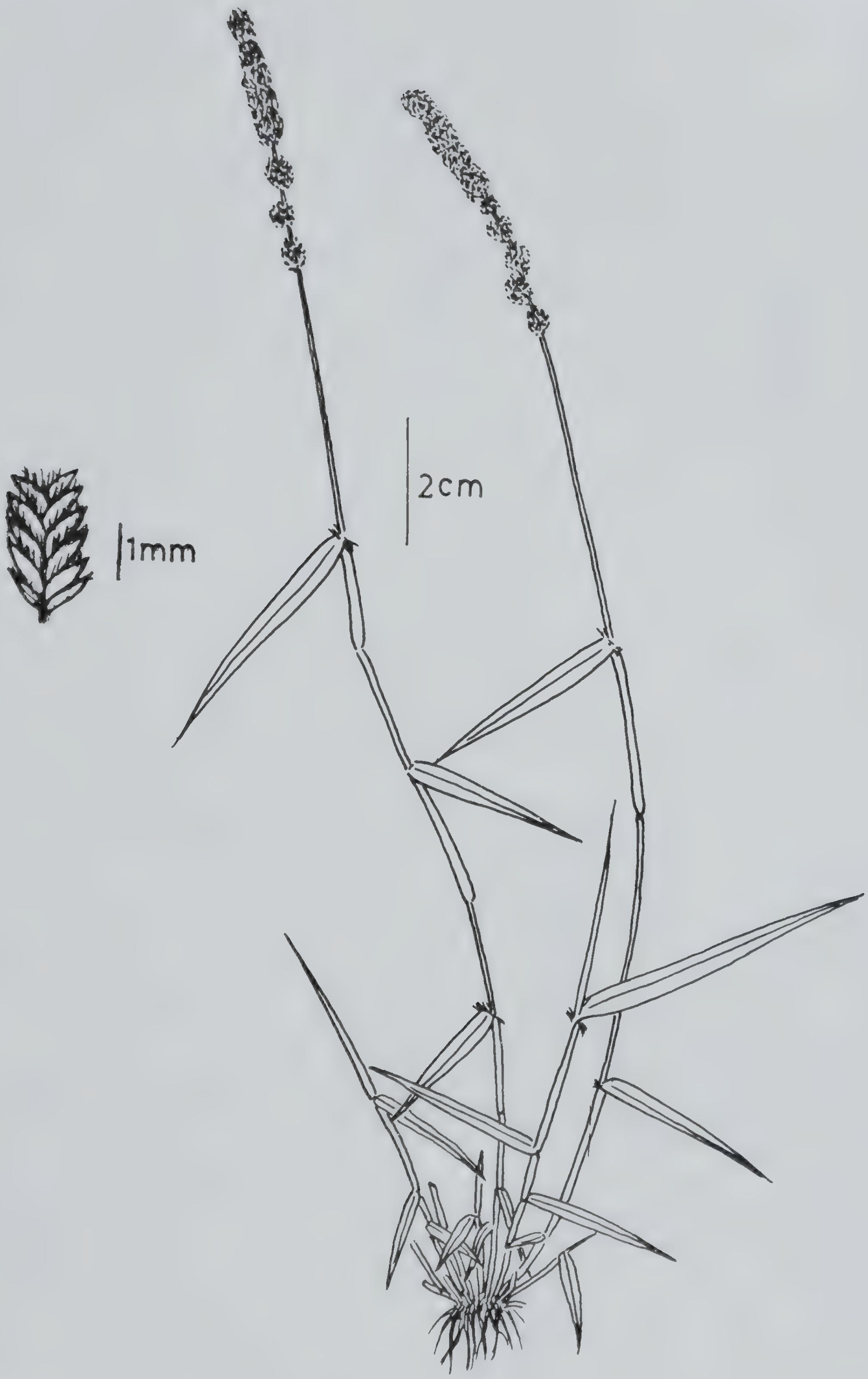
Habitat : Marshy area; common in monsoonal pools and along the margin of aquatic area.

Fl. & Fr. : August to December.

Reference : FBI. 7:30; FD. 393; FNER. 455; FTD. 224

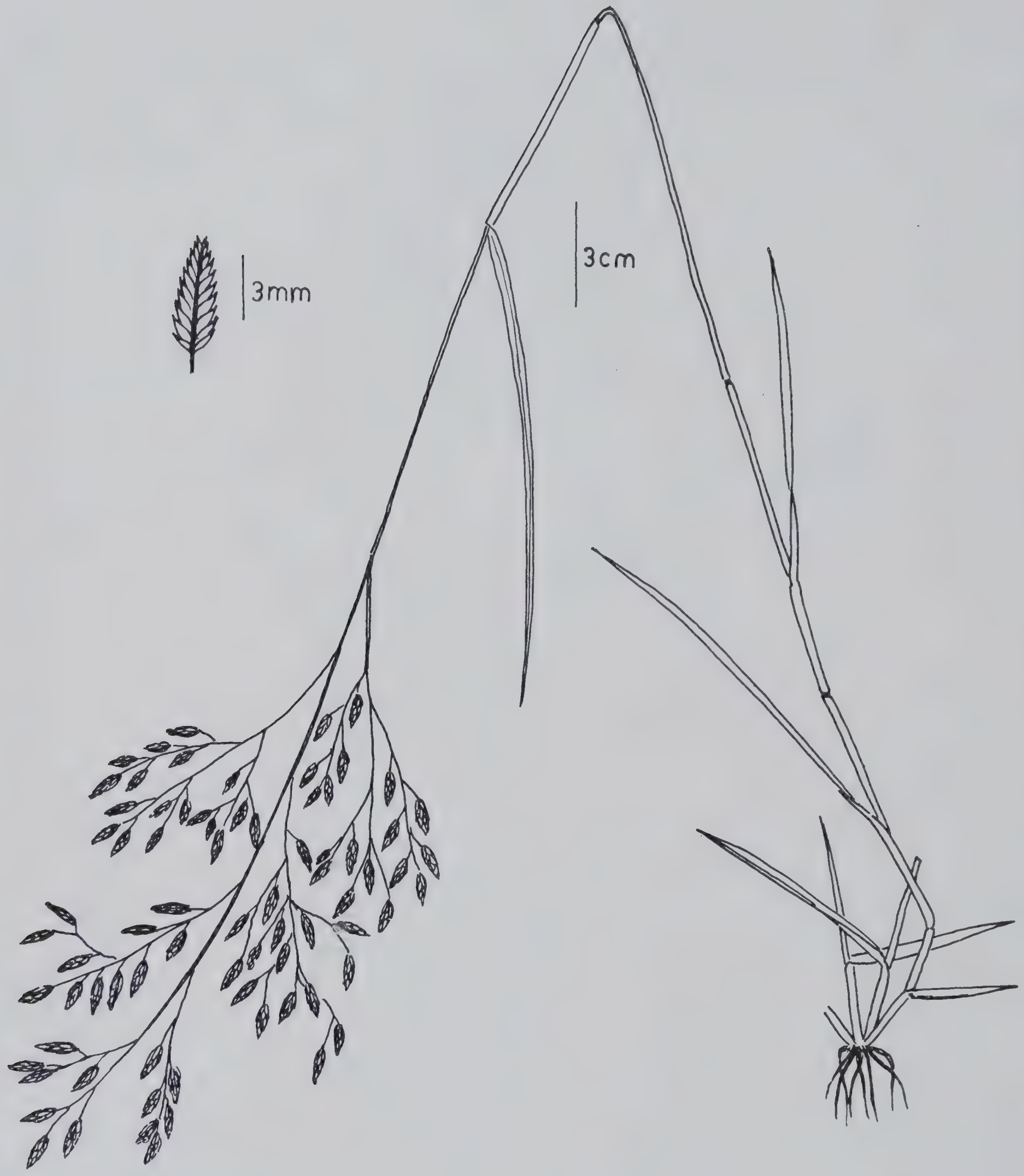


ERAGROSTIS P. Beauv.
Eragrostis cilianensis (All.) Vignolo-Lutati
Synonym : *E. major* (L.) Host
Characteristics : A tufted, annual grass, up to 90 cm high. Leaves 4 to 25 cm long, 0.5 to 1 cm wide; surface glabrous; margin and midribs glandular. Ligule comprised of long hairs. Inflorescence an open panicle, up to 25 cm long, rachis sparsely hairy. Spikelets many-flowered. Grains globose, reddish brown.
Habitat : Sandy soil; not common.
Fl. & Fr. : August to September.
Reference : FBI. 7:320; FD. 384; FID. 412; FBR. 264



Eragrostis ciliaris (L.) R. Br.

Characteristics :	An erect or ascending annual with glabrous stem, up to 40 cm high. Leaves very narrow, 5 to 8 cm long, 1 to 2 mm wide. Ligule a rim of short hairs. Inflorescence a cylindrical, interrupted, spike-like panicle, up to 4 cm long. Spikelets 2 to 5 mm long, with 6 to 12 flowers.
Habitat :	Sandy soil; common after rainy season.
Fl. & Fr. :	August to December.
Reference :	FBI. 7:314; FD. 385; FID. 413; FNER. 460; FTD. 225



Eragrostis gangetica (Roxb.) Steud.

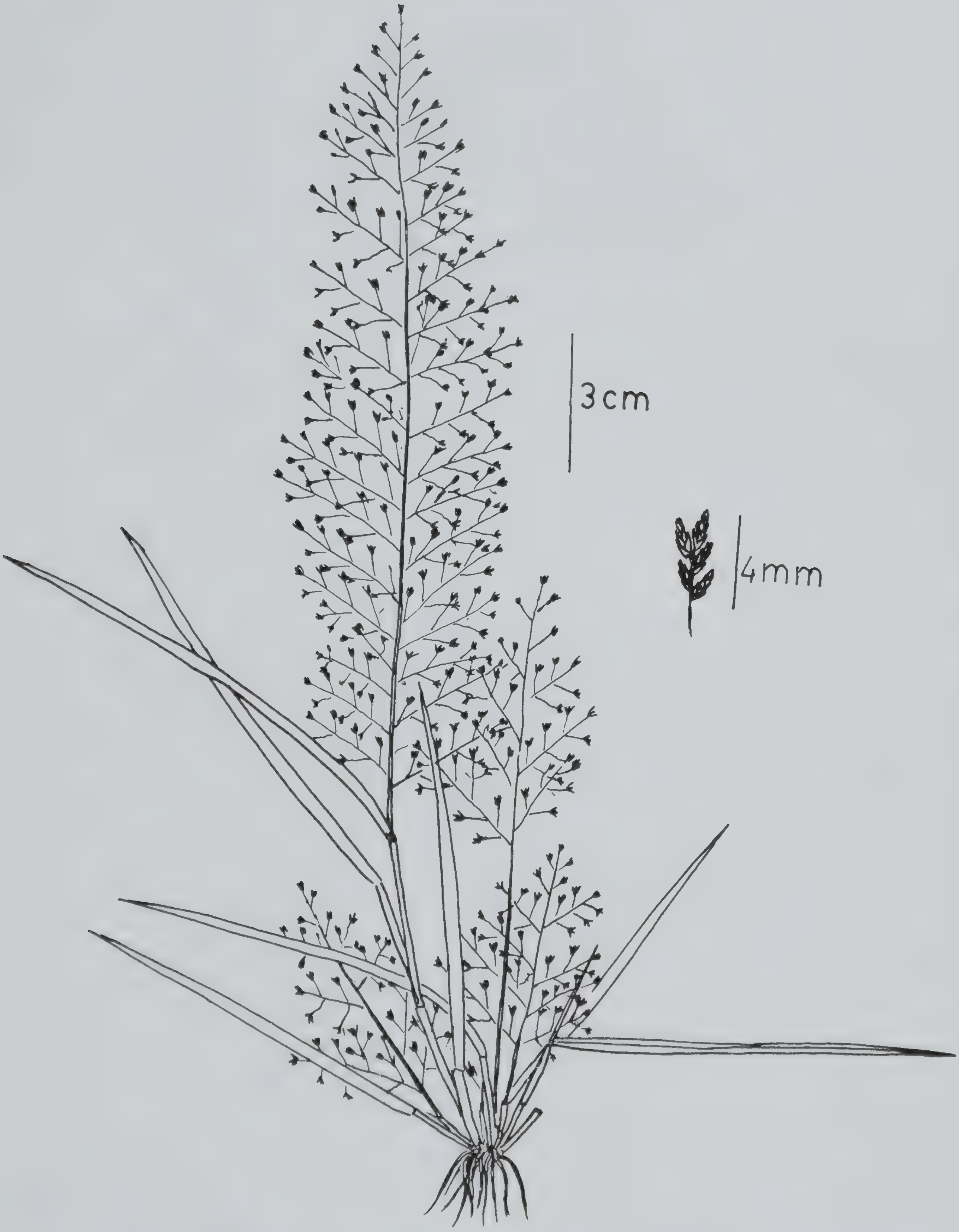
Synonym : *E. stenophylla* Hochst. ex Miq.

Characteristics : A tufted, annual or perennial grass, branching from the base. Leaves 5 to 20 cm long, very narrow, bearded at the junction of sheath and blade. Inflorescence an oblong to pyramidal panicle, up to 20 cm long; lower branches solitary. Spikelets 4 to 7 mm long, with 10 to 25 flowers.

Habitat : Moist to dry sandy areas.

Fl. & Fr. : August to January.

Reference : FBI. 7:318; GM. 248; FID. 414; FNER. 462; FTD. 226



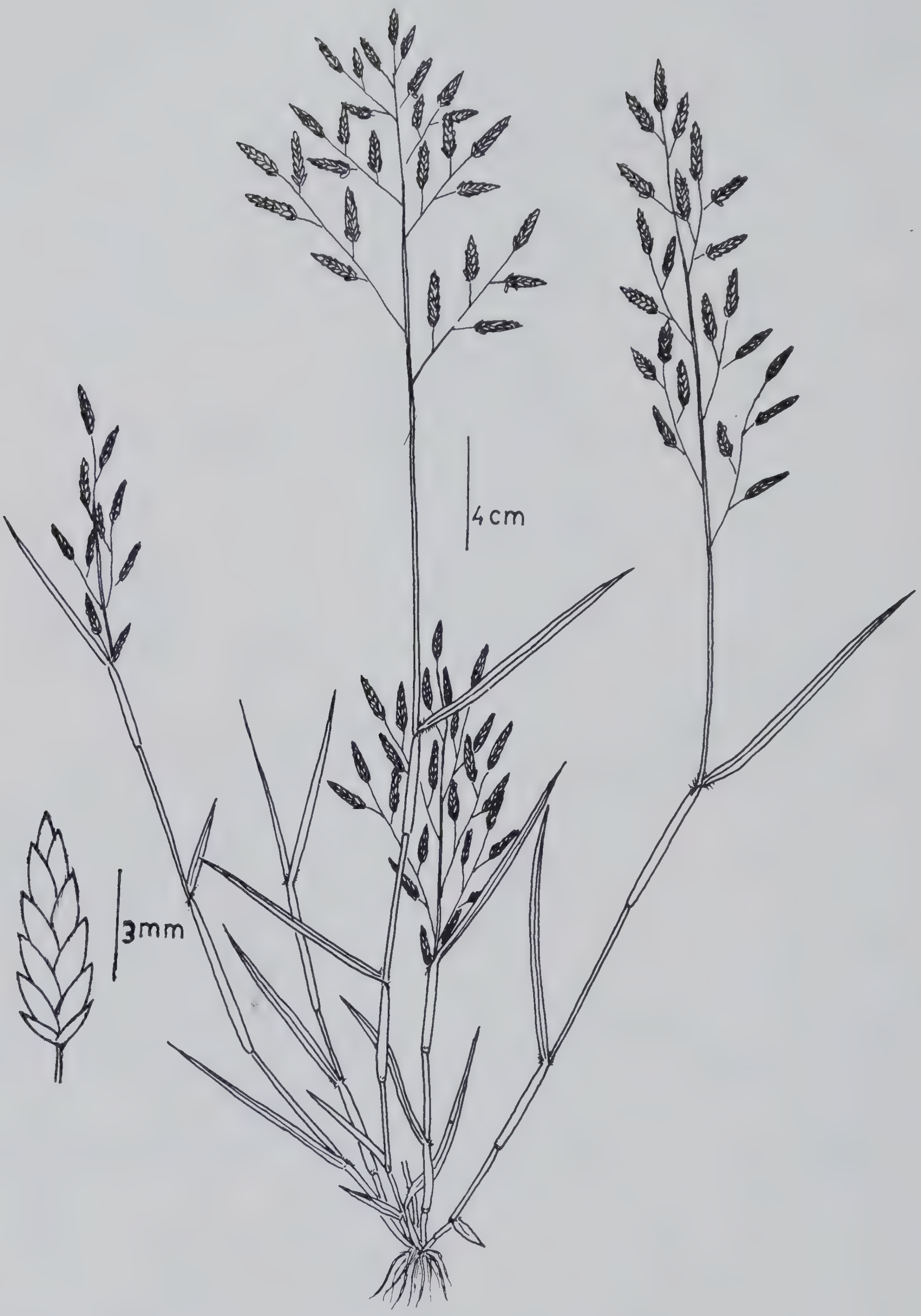
Eragrostis japonica (Thunb.) Trin.

Characteristics : A tufted, annual grass, up to 80 cm high. Leaves 10 to 20 cm long, 3 to 6 mm wide. Ligule a rim of short hairs. Inflorescence a long panicle, up to 25 cm long. Spikelets with 3 to 6 flowers.

Habitat : Wet sandy soil; common in marshy areas of Koladhar after rainy season.

Fl. & Fr. : August to January.

Reference : FBR. 266; GM. 248



Eragrostis minor Host

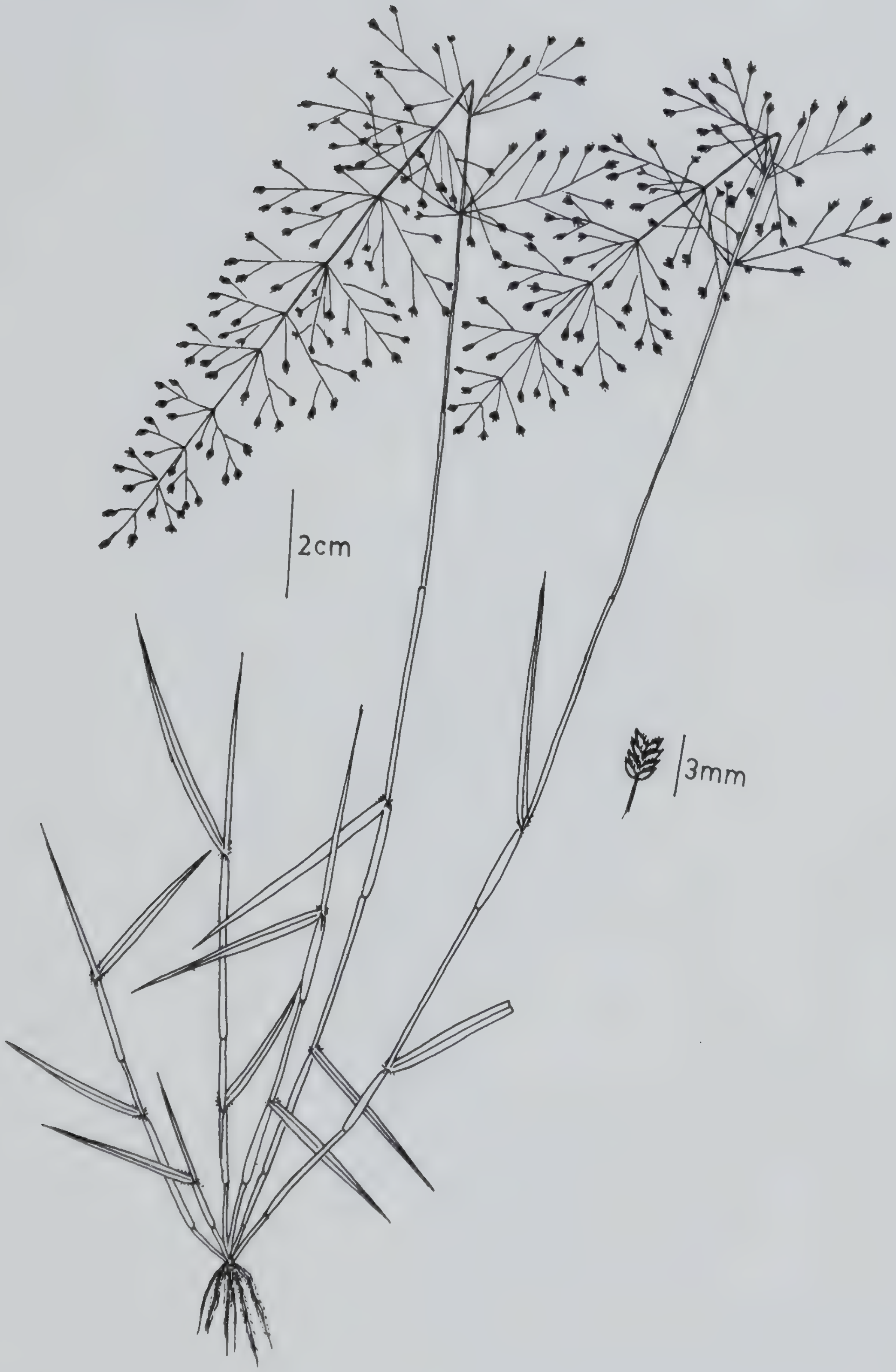
Synonym : *E. poaeoides* P. Beauv.

Characteristics : A slender, tufted annual, 15 to 50 cm high. Leaves linear, glandular along the margin. Ligule a hairy rim. Spikelets with 7 to 15 flowers. Grains about 5 mm long, round, brown.

Habitat : Moist soil in open grasslands and along roadsides.

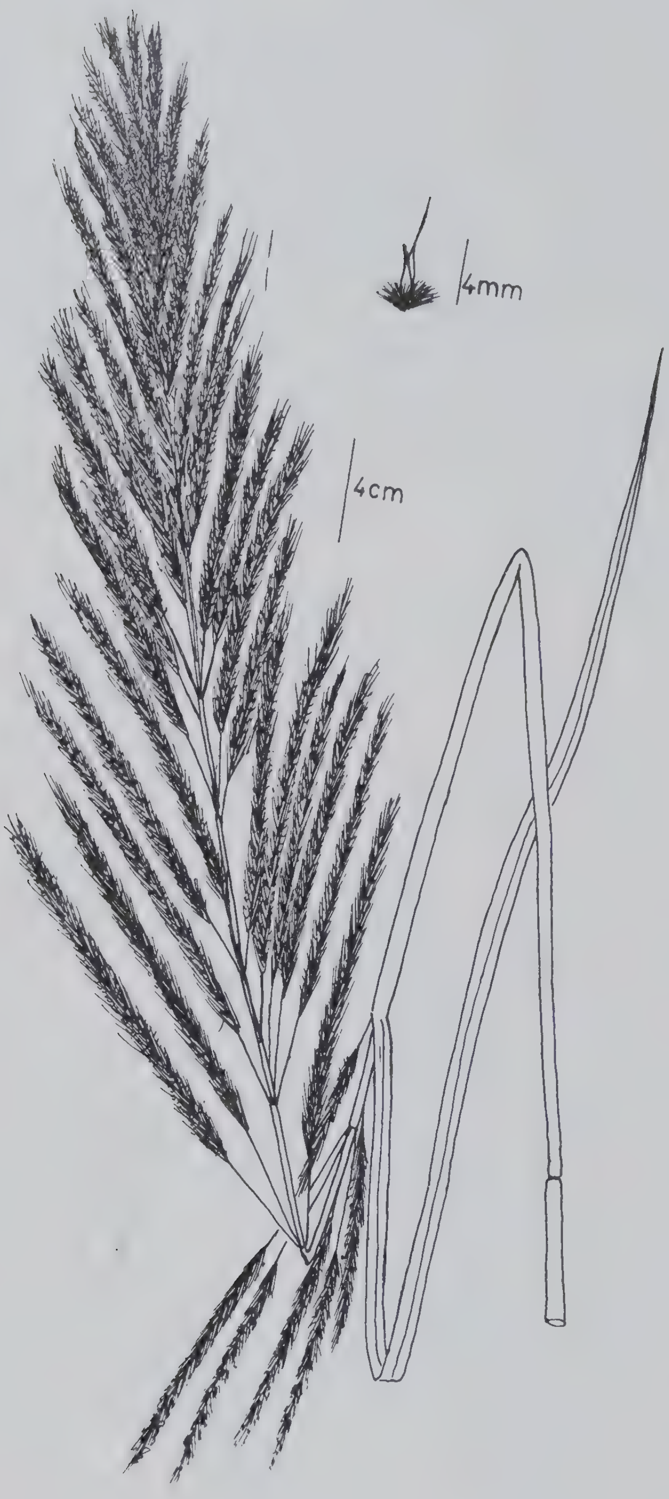
Fl. & Fr. : July to November.

Reference : FBI. 7:321; FD. 384; GM. 252; FID. 414; FNER. 463



Eragrostis tenella (L.) P. Beauv.

Characteristics	:	A tufted annual grass with decumbent or ascending glabrous stem, up to 40 cm high. Leaves 6 to 10 cm long, 3 to 5 mm wide, narrowly linear, with fine hairs near the junction of sheath and leaf blade. Ligule with fine hairs. Inflorescence a plumose, open panicle; rachis with hairs at nodes. Spikelets about 2 mm long, with 4 to 6 flowers.
Habitat	:	Sandy soil.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7:315; FD. 386; FID. 415; FNER. 463; FBR. 267



ERIANTHUS Michx.

Erianthus ravennae (L.) P. Beauv.

Synonym : *Saccharum ravennae* (L.) Murray

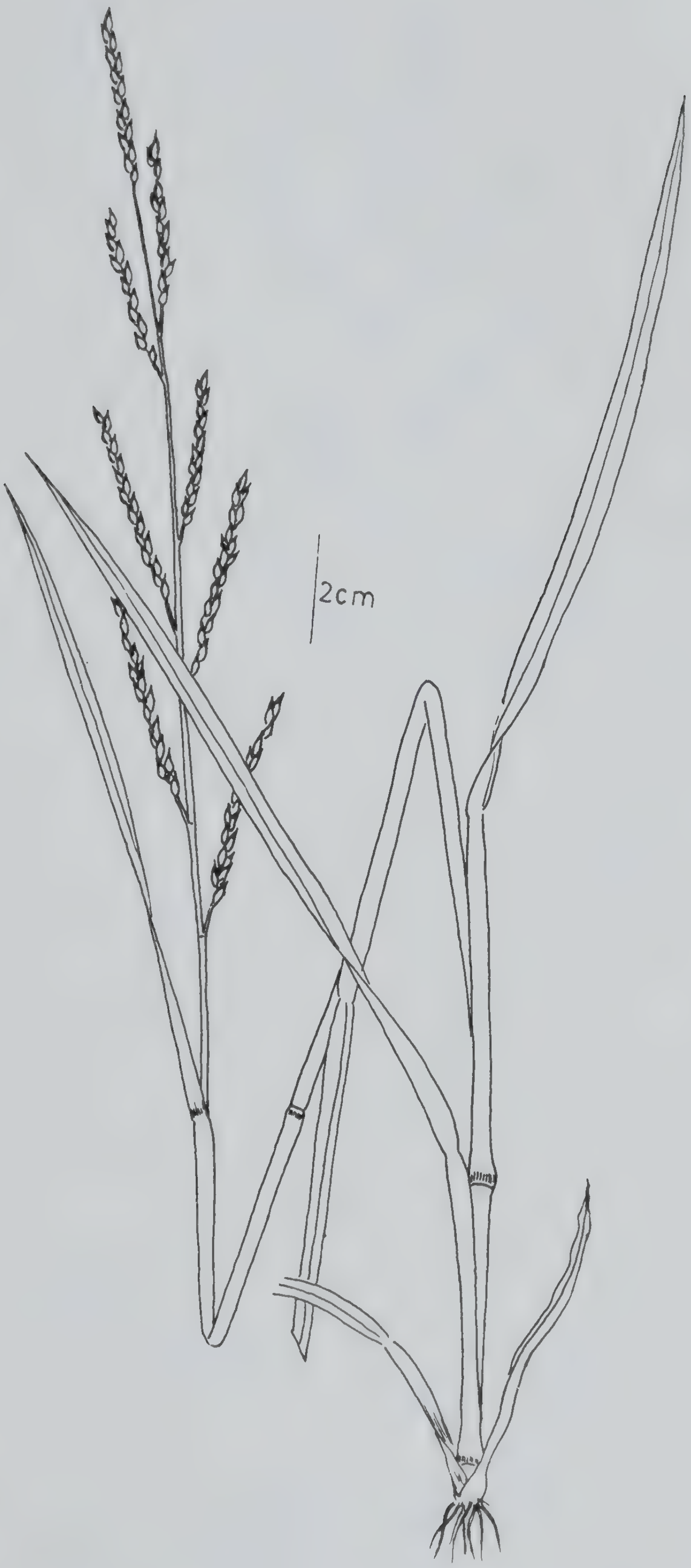
Local name : Baru-sarpatho

Characteristics : A large tufted, perennial with smooth, solid stems, up to 4 m high. Leaves linear, acuminate at apex; glabrous on surface, scabrous at margin. Inflorescence a large, plumose, silvery-silky panicle, 30 to 60 cm long. Spikelets in pairs; one sessile and one pedicellate.

Habitat : Open sandy areas and grasslands; common in Koladhar area.

Fl. & Fr. : September to January.

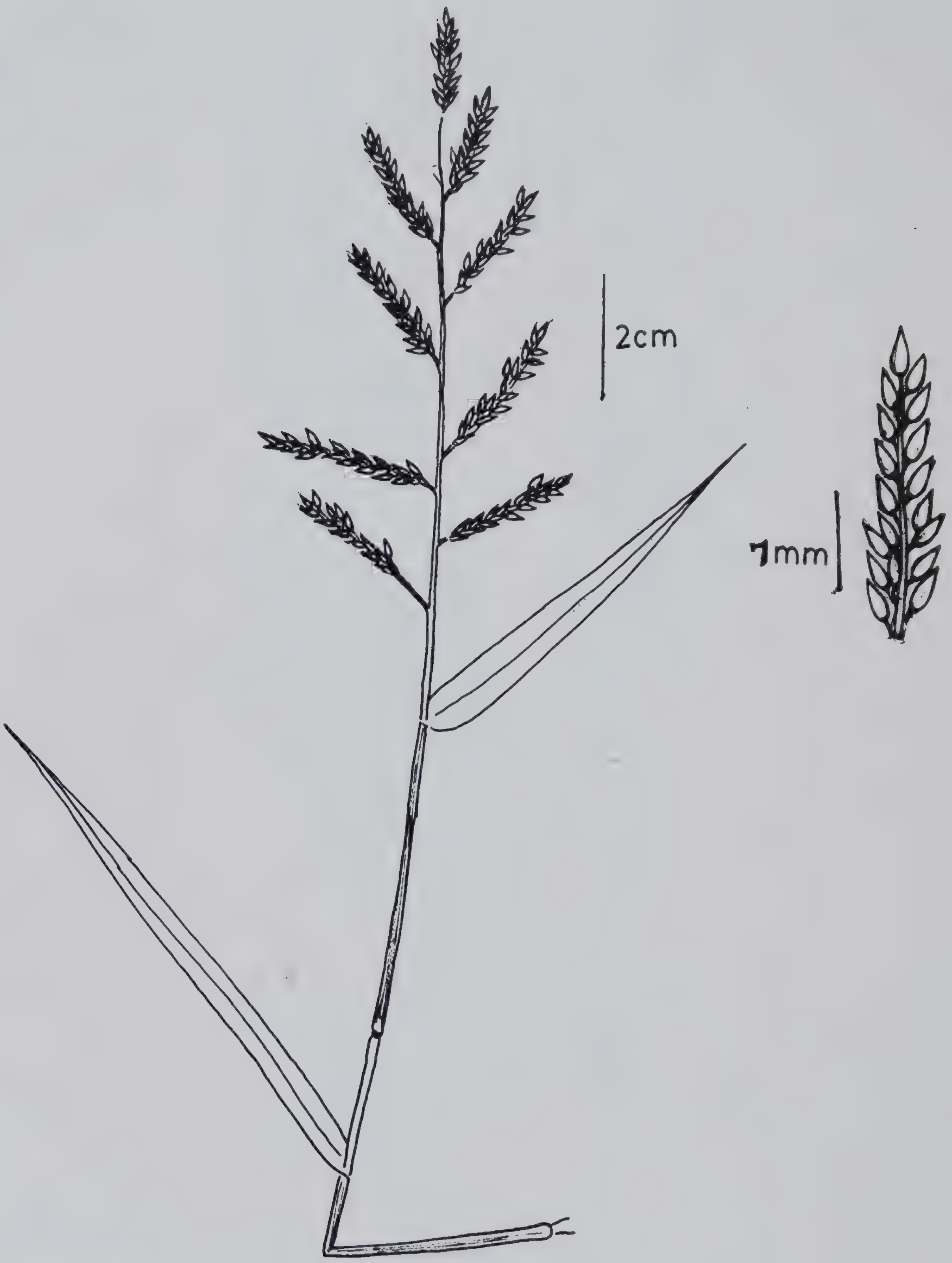
Reference : FBI. 7:121; FD. 371; HFD. 615



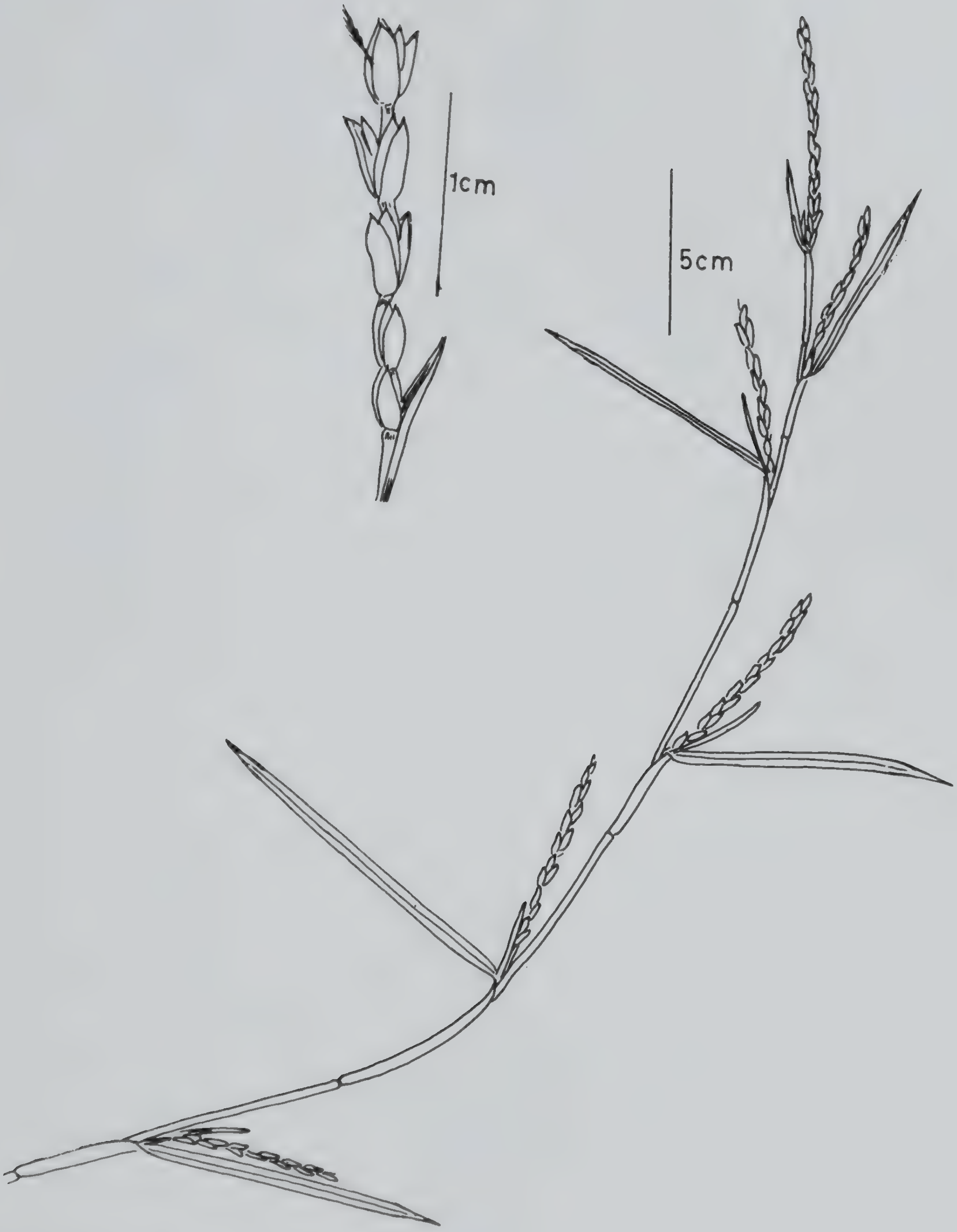
ERIOCHLOA H. B. & K.

Eriochloa fatmensis (Hochst. & Steud.) Clayton

Synonym	: *E. nubica* (Steud.) Hack. & Stapf ex Thell.
Characteristics	: An annual, erect, tufted grass. Spikes erect or suberect, arranged alternately on a hairy rachis; spikelets elliptic, with short awns.
Habitat	: Margins of monsoonal pools.
Fl. & Fr.	: September to February.
Reference	: FNER. 466; Kew Bull. 30:108. 1975



Eriochloa procera (Retz.) Hubb.
Synonym : *E. polystachya* Hook. f.
Characteristics : An erect, tufted grass, up to 150 cm high. Stem glabrous, swollen at joints. Leaves linear-lanceolate. Spikes arranged alternately on a glabrous rachis. Spikelets distichous, not awned.
Habitat : Margins of monsoonal pools; common after rainy season.
Fl. & Fr. : September to February.
Reference : FBI. 7:20; FD. 403; FTD. 229; FBR. 269



HEMARTHRIA R. Br.

Hemarthria compressa (L. f.) R. Br.

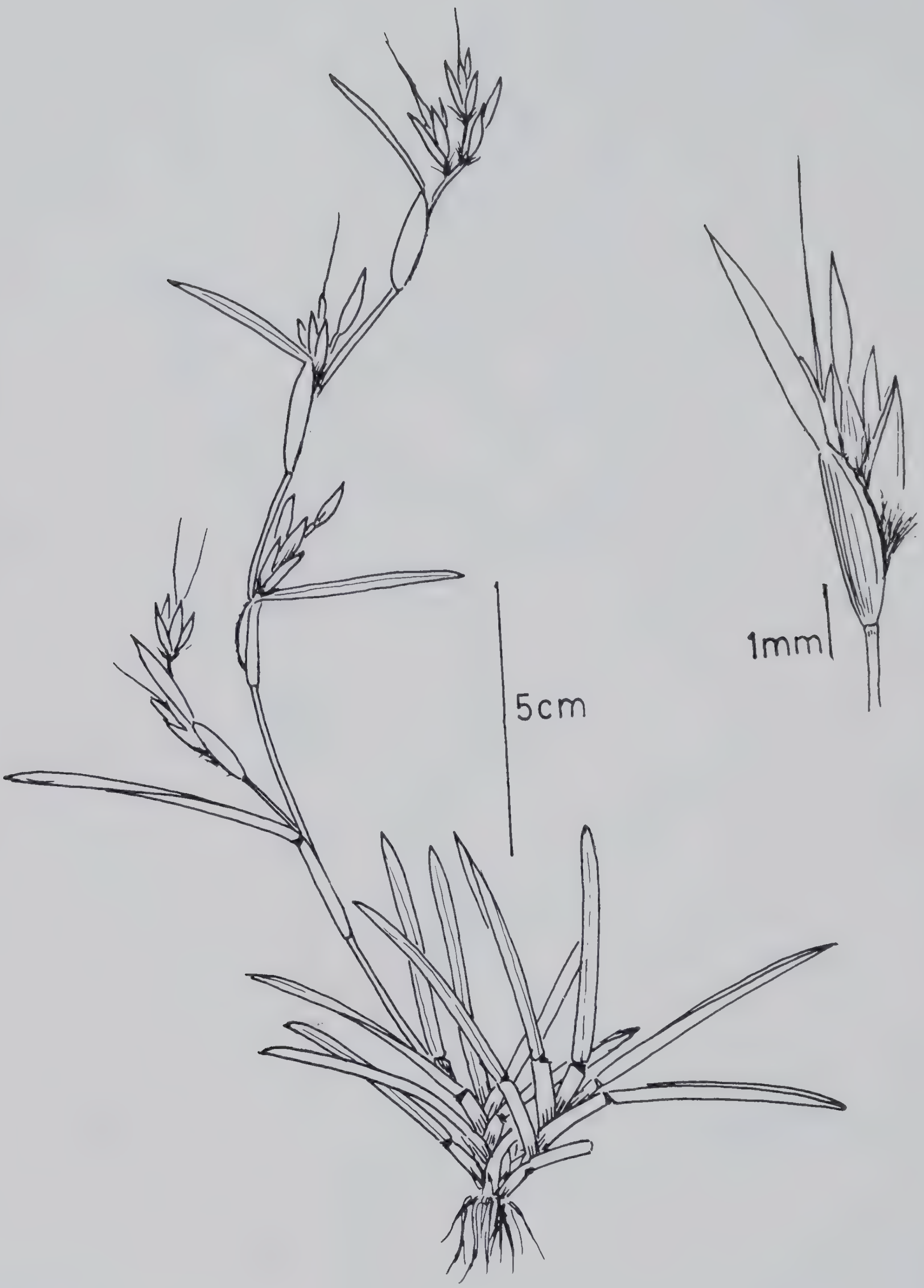
Synonym : *Rottboellia compressa* L. f.

Characteristics : A perennial grass with erect or decumbent stem, rooting from the basal nodes. Leaves 5 to 12 cm long, 2 to 3 mm wide, linear, glabrous. Ligule a ciliate rim. Inflorescence a solitary, spike-like raceme, curved or straight, 3 to 8 cm long; joints of the rachis thickened. Spikelets sessile or pedicellate.

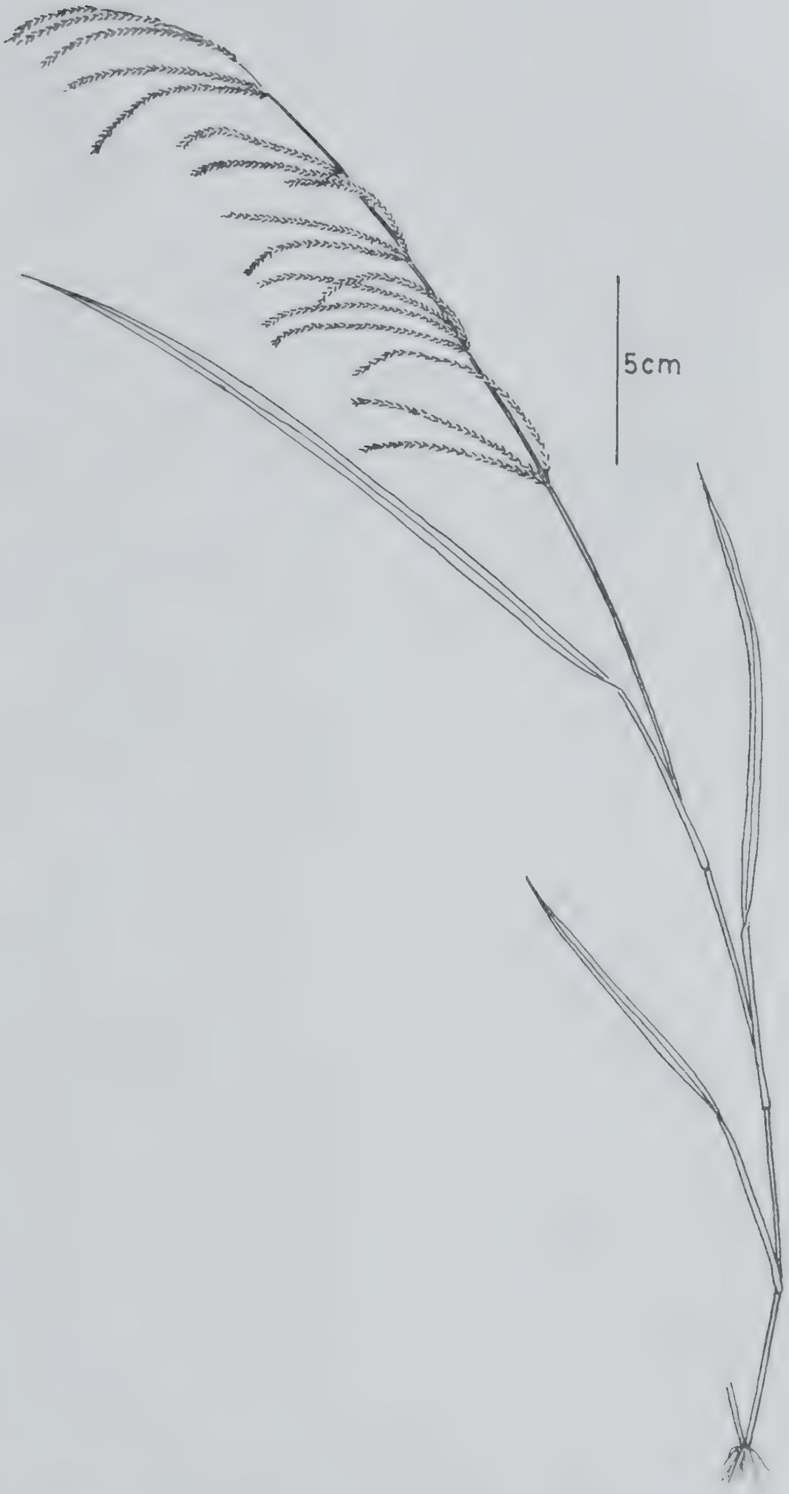
Habitat : Moist soil to shallow water areas; common along the margin of aquatic areas.

Fl. & Fr. : July to December.

Reference : FBI. 7:153; FD. 381; GM. 64; FNER. 468; FTD. 229



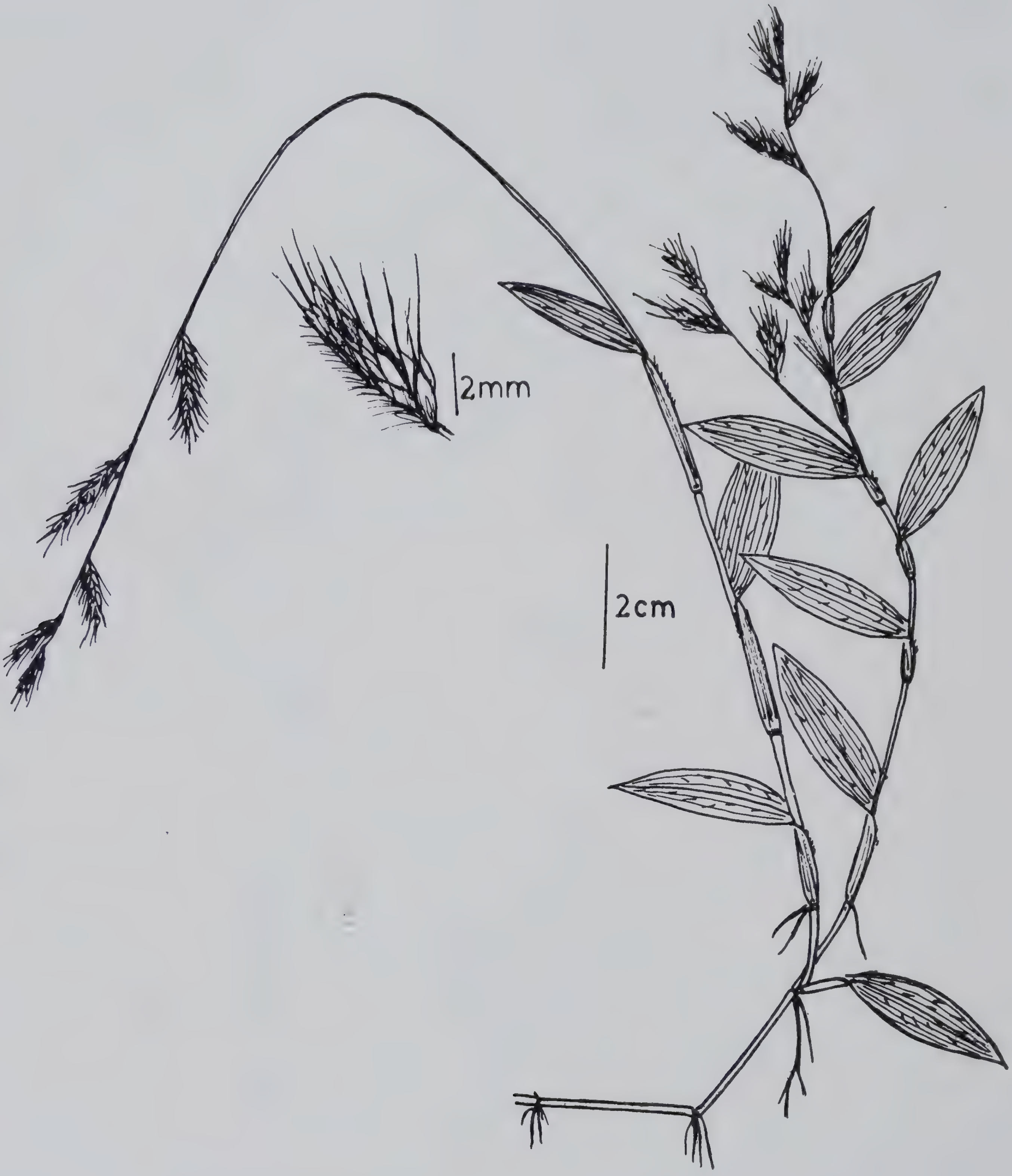
ISEILEMA Anderss.
Iseilema laxum Hack.
Local name : Gandhel
Characteristics : An erect, ascending or prostrate perennial with glabrous nodes. Leaves linear- lanceolate, 4 to 25 cm long, green or purplish. Ligule a membranous rim. Inflorescence a panicle of axillary fascicles, subtended by a spathe-like bract. Spikelets sessile and pedicellate.
Habitat : Dry soil; common in shady areas under shrubs and small trees.
Fl. & Fr. : August to December.
Reference : FBI. 7:218; FD. 369; GM. 80



LEPTOCHLOA P. Beauv.

Leptochloa panicea (Retz.) Ohwi

Synonym	:	*L. filiformis* sensu Hook. f. non P. Beauv.
Characteristics	:	An annual grass with slender, glabrous stem, up to 60 cm high. Leaves 10 to 25 cm long, 3 to 5 mm wide. Ligule a membranous rim. Inflorescence a diffuse panicle, up to 25 cm long, with many capillary branches. Spikelets about 2 mm long, with 2 to 4 flowers; upper and lower glumes with fine hairs on keels.
Habitat	:	Moist shaded areas; not common.
Fl. & Fr.	:	July to October.
Reference	:	FBI. 7:298; FD. 396; GM. 64; FTD. 229



OPLISMENUS P. Beauv.

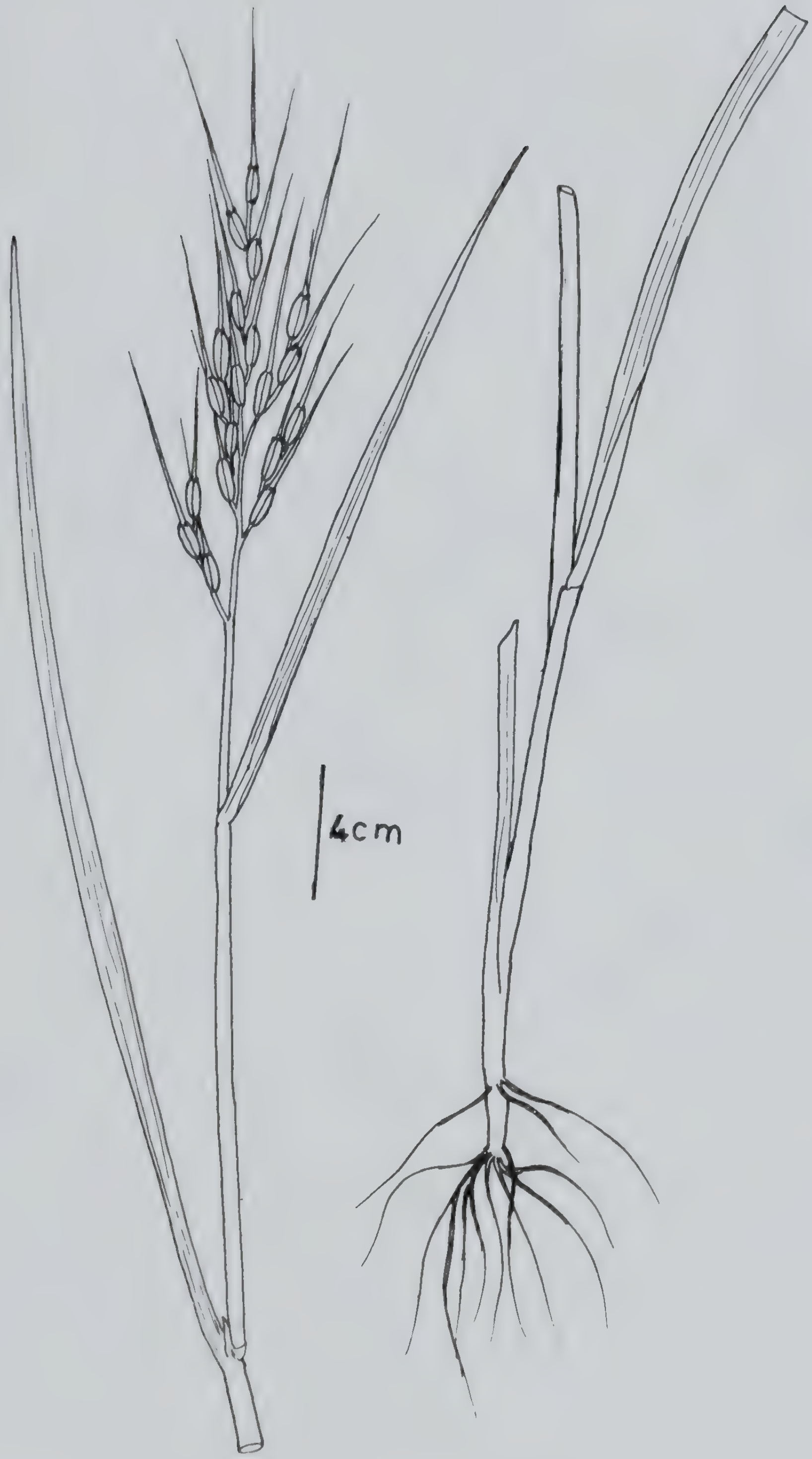
Oplismenus burmanii (Retz.) P. Beauv.

Characteristics : A prostrate or decumbent annual. Leaves 2 to 6 cm long, 0.5 to 1.8 cm wide, ovate-lanceolate, with hairs. Ligule membranous. Inflorescence a panicle of 5 to 8 racemes; racemes 1 to 1.5 cm long.

Habitat : Moist shaded areas; commonly found in densely wooded areas.

Fl. & Fr. : August to December.

Reference : FBI. 7:68; FD. 394; GM. 151; FBR. 272



ORYZA L.

Oryza rufipogon Griff.

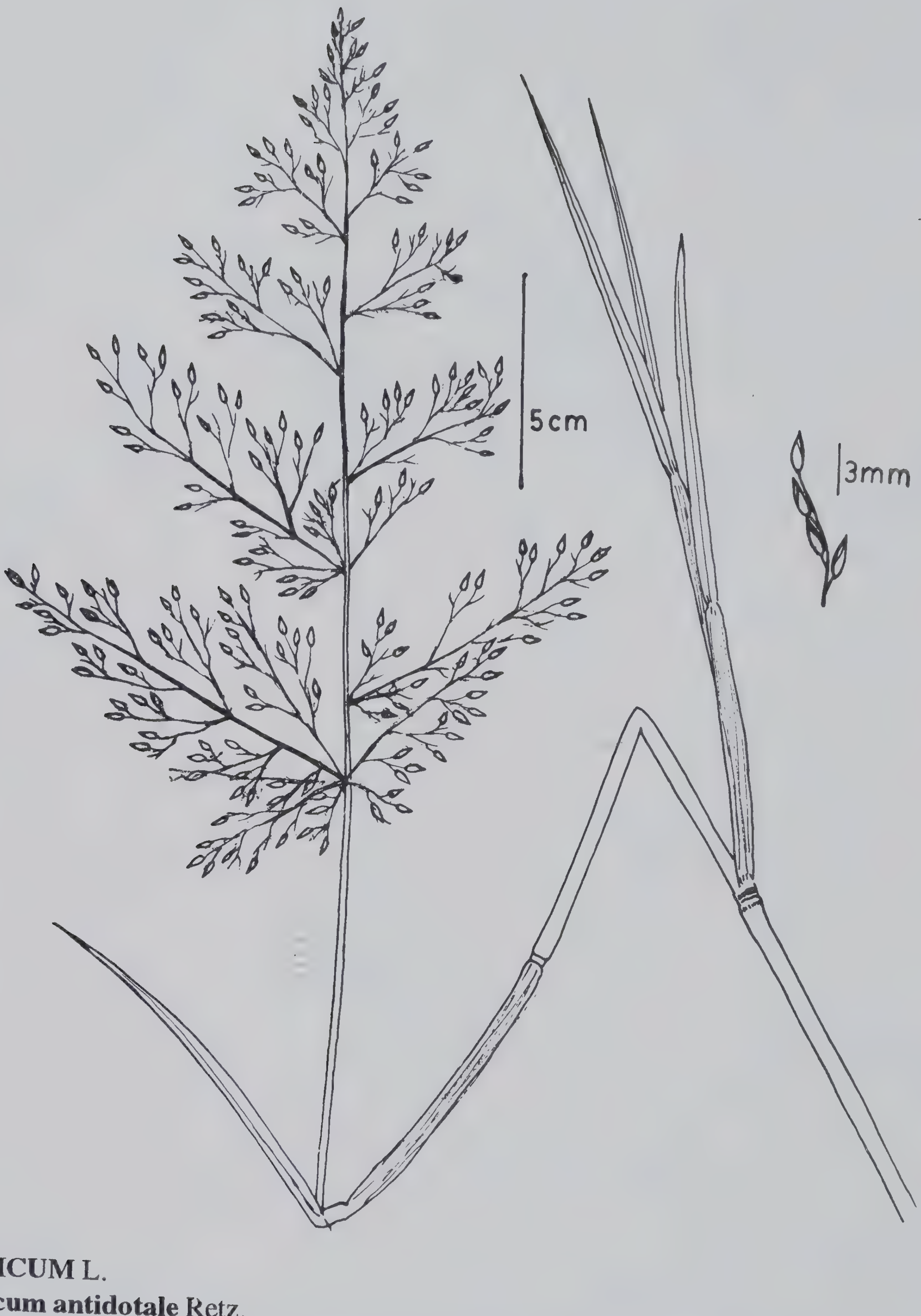
Local name : Jungli chaval

Characteristics : A tufted, annual or perennial, up to 1 m high. Leaves 15 to 30 cm long, 0.8 to 1 cm wide, linear-lanceolate. Inflorescence a 15 to 25 cm long panicle. Spikelets 1 cm long, upper and lower glumes subequal. Grains with a long awn.

Habitat : Marshy areas and shallow waters of monsoonal pools; abundant near Chital Van and Koladhar area.

Fl. & Fr. : August to December.

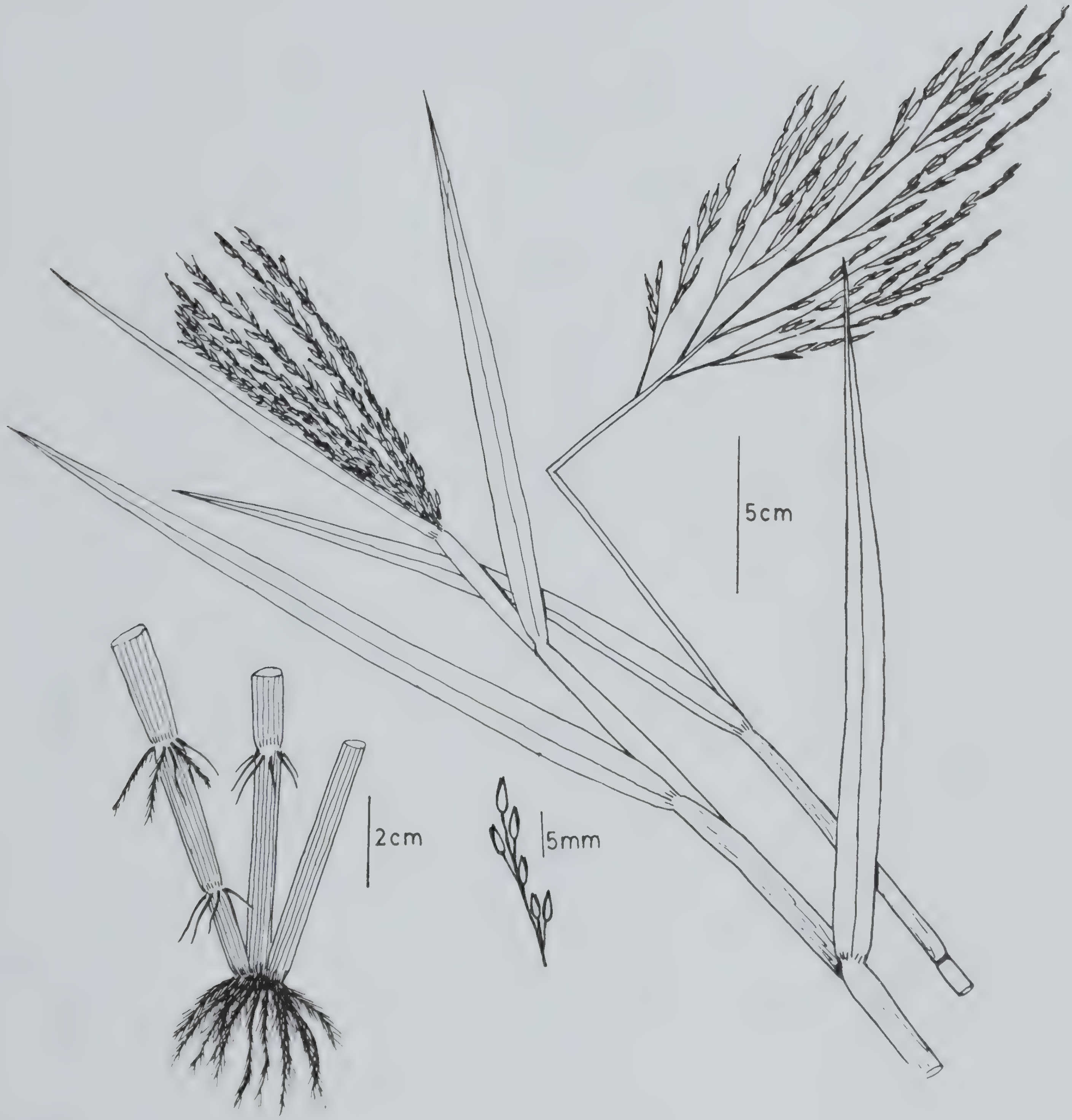
Reference : GM. 265; FHD. 743; FTD. 231



PANICUM L.

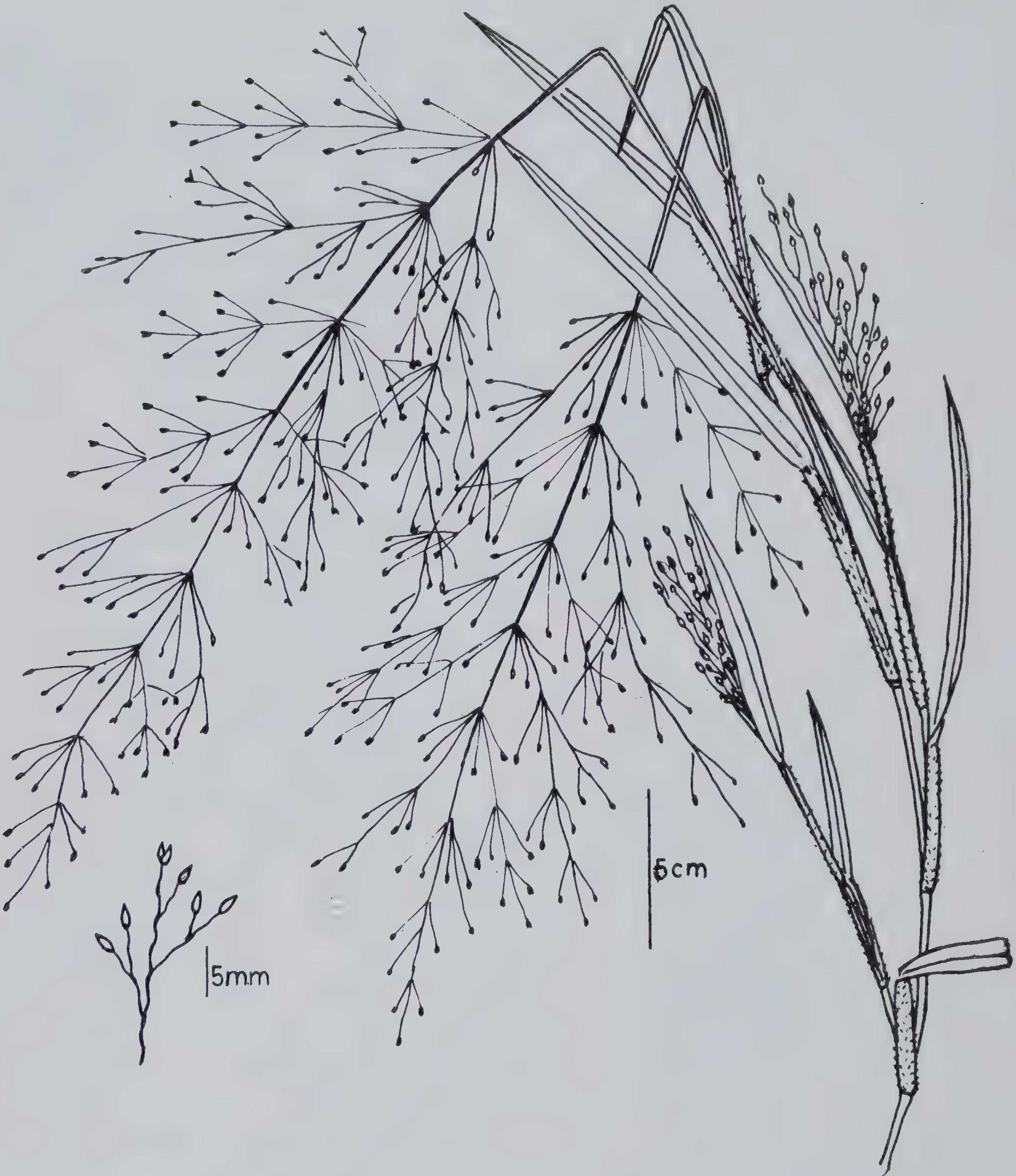
Panicum antidotale Retz.

Characteristics	:	A perennial grass with smooth, glabrous, solid stems, up to 160 cm high. Leaves 15 to 60 cm long, 0.6 to 2 cm wide, linear, glabrous. Ligule membranous. Inflorescence a diffuse panicle, 15 to 30 cm long, with fascicled branches. Spikelets about 3 mm long.
Habitat	:	Moist sandy soil; common after rainy season.
Fl. & Fr.	:	September to January.
Reference	:	FBI. 7:406; FID. 424



Panicum paludosum Roxb.

Synonym	:	*P. proliferum* sensu Hook. f. non Lamk.
Characteristics	:	An aquatic, perennial grass, branching from the base and rooting at nodes. Leaves 10 to 40 cm long, 0.5 to 1 cm wide, with glabrous surface and scabrous margin. Ligule a rim of hairs. Inflorescence a diffuse to contracted panicle, 10 to 20 cm long. Spikelets 3 to 4 mm long, solitary or in pairs.
Habitat	:	Occasionally found in shallow to deep water areas.
Fl. & Fr.	:	August to February.
Reference	:	FBI. 7:50; FD. 406; GM. 158; FNER. 476; FBR. 274



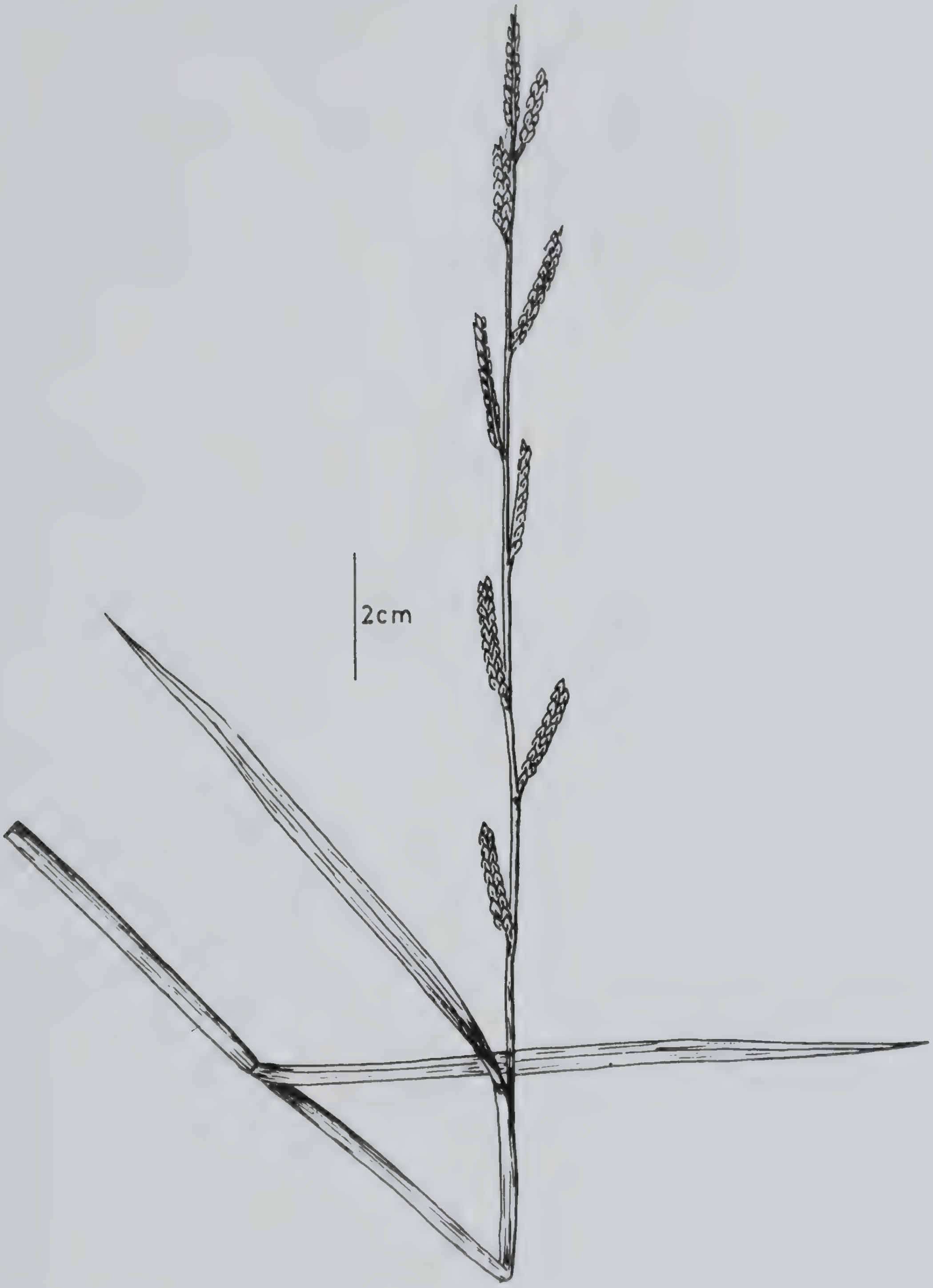
Panicum psilopodium Trin.

Characteristics : An erect or ascending annual, up to 100 cm high. Leaves 10 to 15 cm long, 7 to 12 mm wide, lanceolate, acuminate at apex, glabrous. Ligule a ciliate rim. Inflorescence a spreading panicle, 10 to 20 cm long, with thin capillary branches. Spikelets about 3 mm long.

Habitat : Sandy soil.

Fl. & Fr. : September to December.

Reference : GM. 162; FHD. 744; FTD. 231; FBR. 274



PASPALIDIUM Stapf

Paspalidium punctatum (Burm.) A. Camus

Synonym : *Panicum punctatum* Burm.

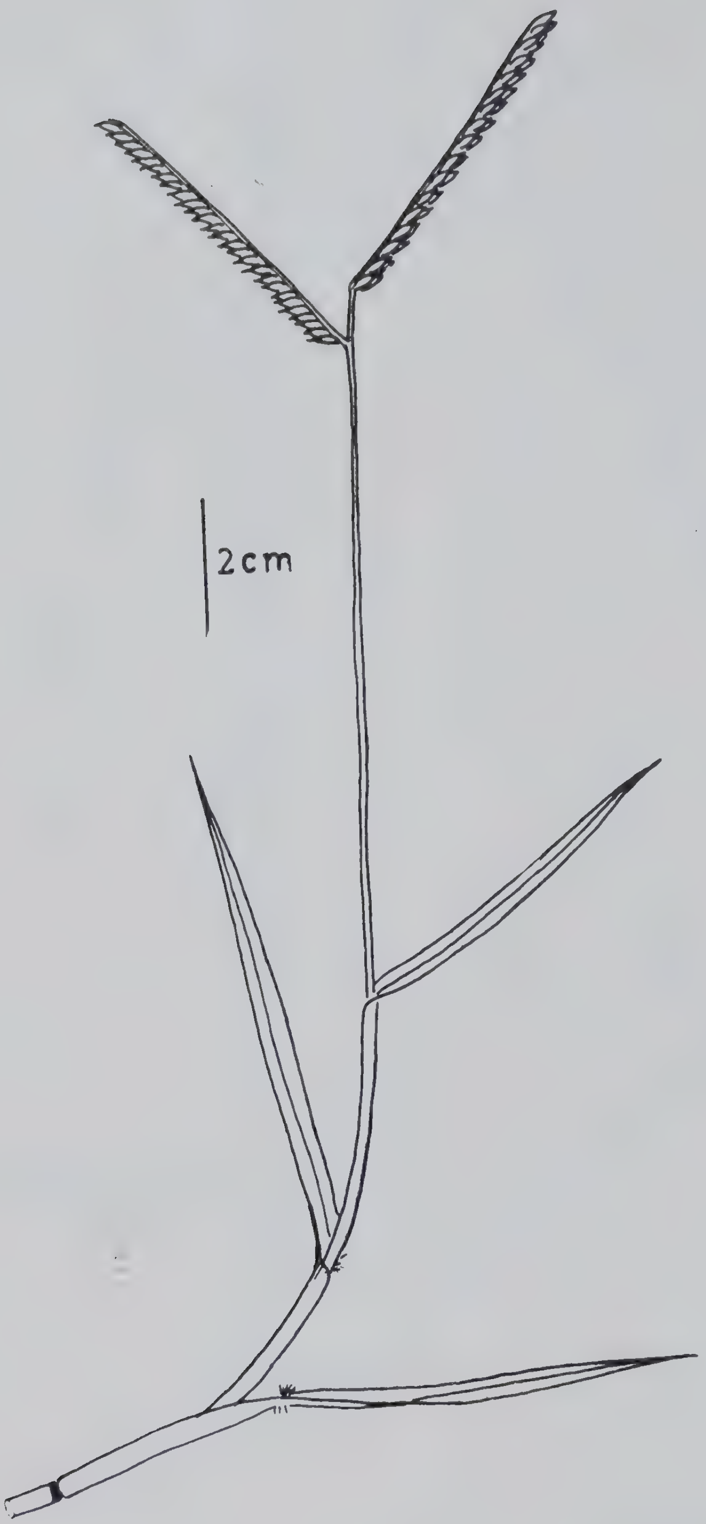
Local name : Phatairo

Characteristics : A perennial aquatic grass with erect or ascending stem, branching from the base, up to 120 cm high. Leaves 4 to 40 cm long, 0.5 to 1.2 cm wide, with glabrous surface and scabrous margin. Ligule a rim of short hairs. Inflorescence comprised of 3 to 8 spike-like, 2 to 3 cm long racemes; arranged alternately. Spikelets in 2 rows.

Habitat : Common in marshy areas and shallow to deep water.

Fl. & Fr. : August to December.

Reference : FBI. 7:29; FNER. 478



PASPALUM L.

Paspalum distichum L.

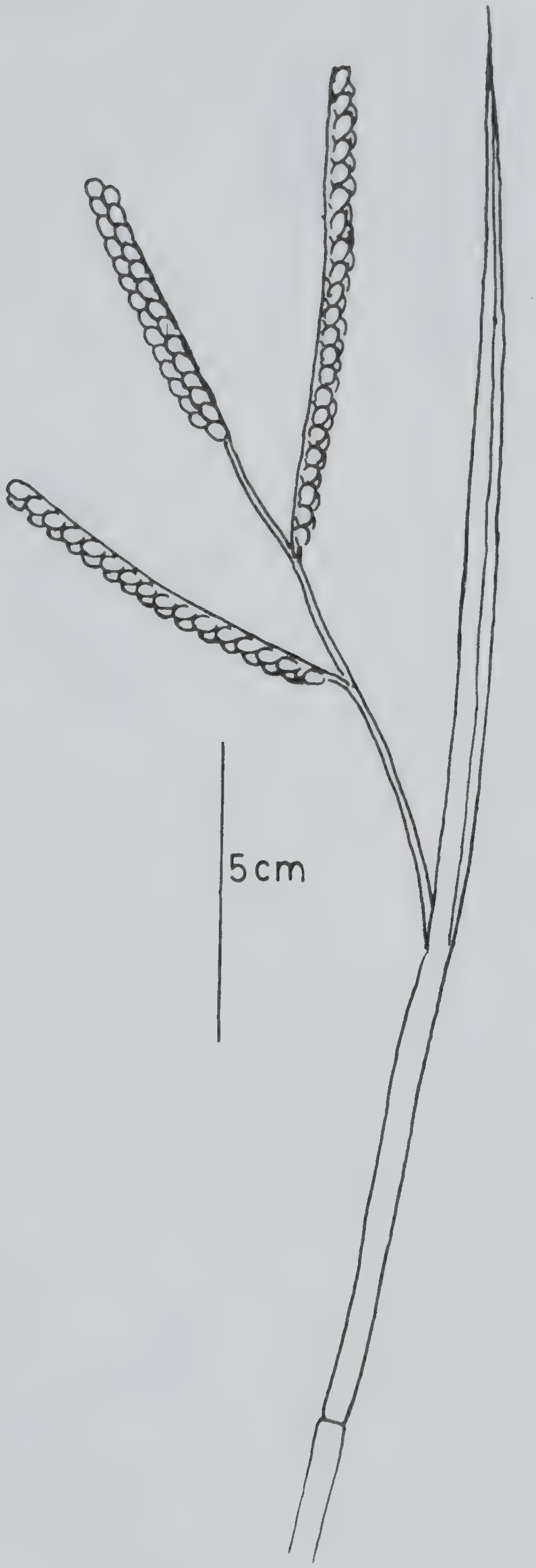
Local name : Ancha

Characteristics : A rhizomatous, perennial, aquatic grass spreading by stolons to form a thick mat on water surface. Leaves up to 8 cm long, glabrous to sparsely hairy. Ligule membranous. Inflorescence comprised of 2 or rarely 3 racemes on a common peduncle; each 2 to 7 cm long; rachis flattened. Spikelets ovate-oblong, in 2 rows.

Habitat : Aquatic areas and wet soil; most abundant grass inthe sanctuary.

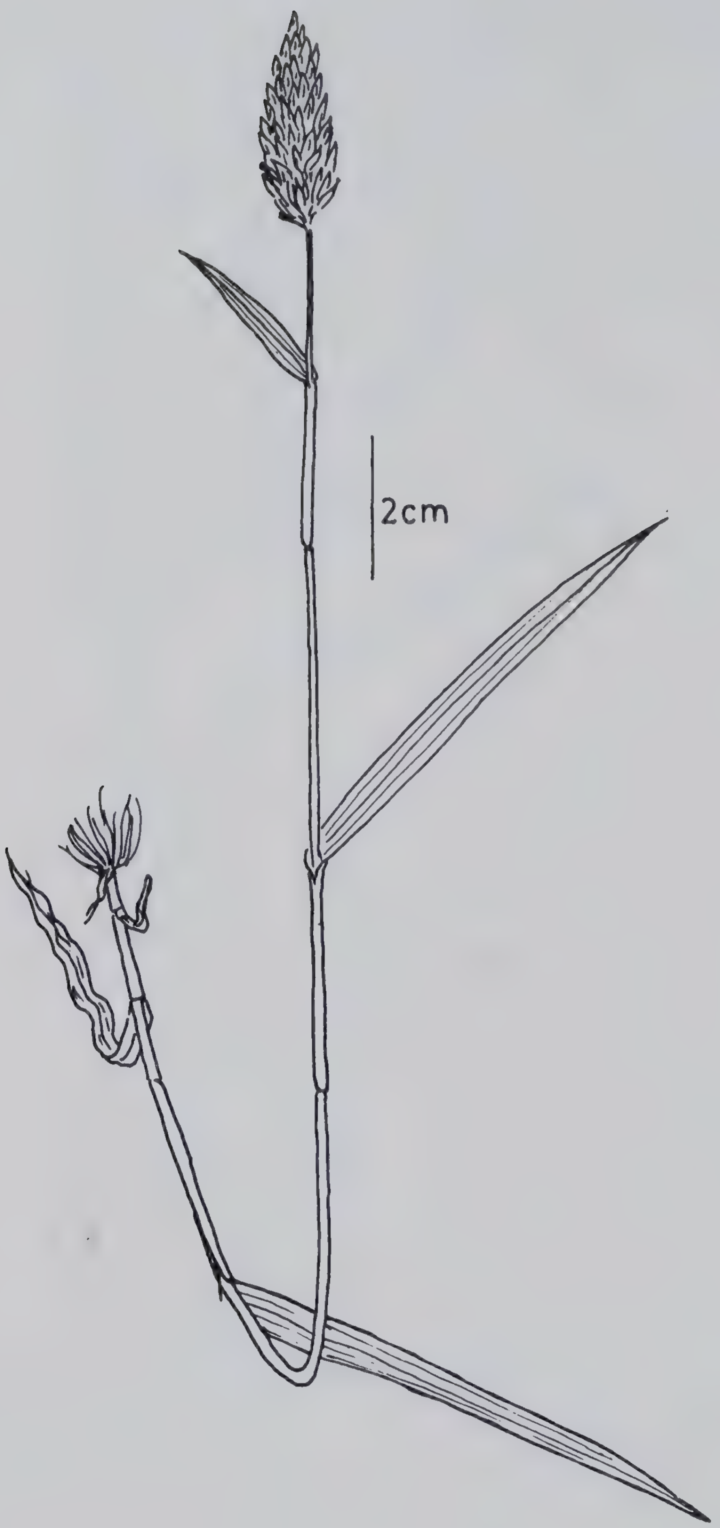
Fl. & Fr. : July to December.

Reference : FBI. 7:12; FD. 389



Paspalum scrobiculatum L.

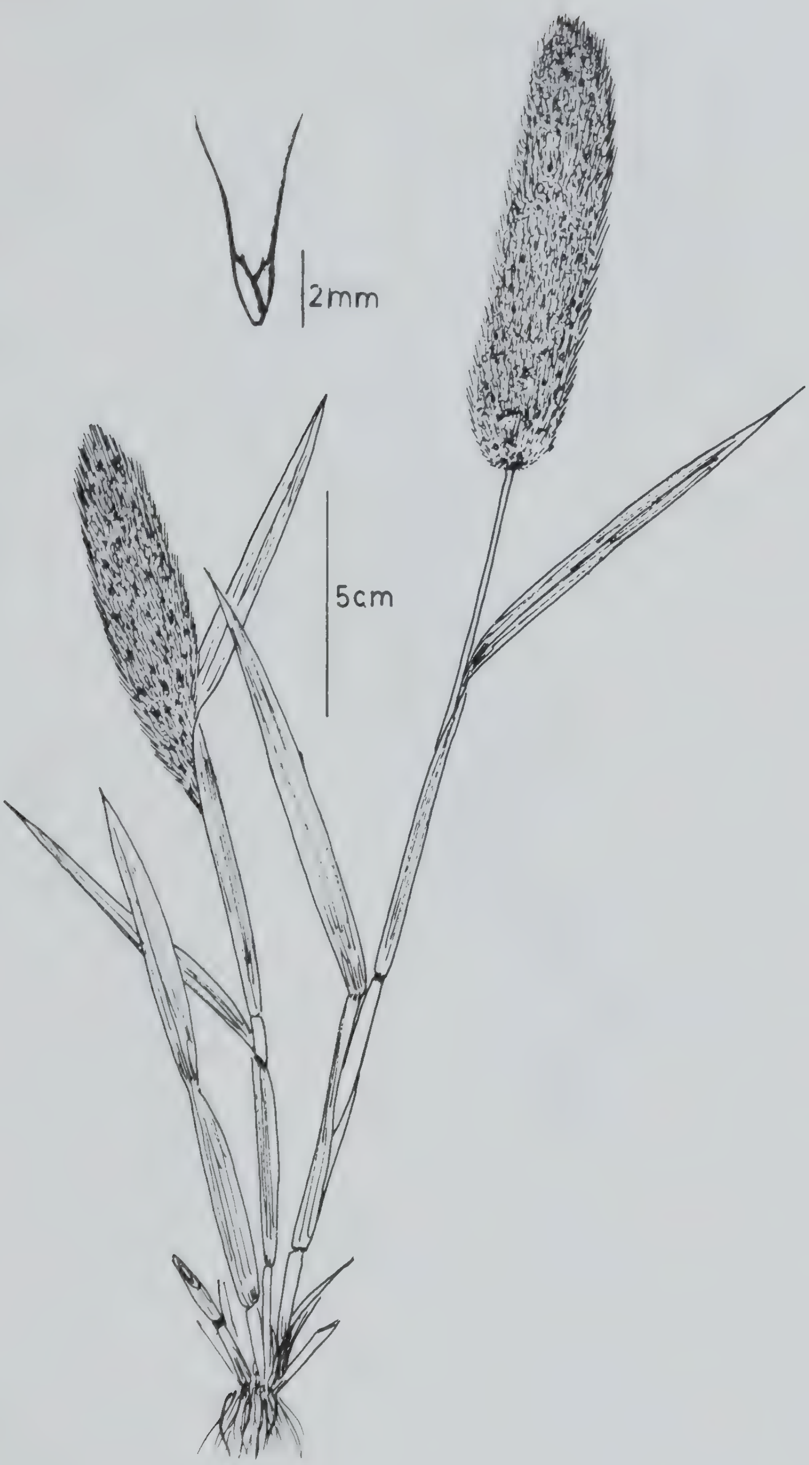
Characteristics	:	An annual or perennial grass with glabrous, decumbent stems, rooting at nodes. Leaves 4 to 20 cm long, 0.5 to 1 cm wide, glabrous to sparsely hairy. Ligule membranous. Racemes usually 2 or 3, on a short axis; rachis flattened. Spikelets biseriate.
Habitat	:	Moist soil; not common.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7:10; GM. 170; FNER. 479; FBR. 276



PHALARIS L.

Phalaris minor Retz.

Characteristics	:	An erect or decumbent, annual grass with swollen nodes, up to 100 cm high. Leaves 10 to 25 cm long, 1.2 to 1.5 cm wide, linear-lanceolate, scabrous on margin. Ligule membranous. Inflorescence a cylindrical, contracted panicle, up to 10 cm long. Spikelets 5 to 6 mm long, 3-flowered.
Habitat	:	Sandy soil; rare in the Park, but common in adjacent agricultural fields.
Fl. & Fr.	:	July to December.
Reference	:	FBI. 7:221; FD. 382; GM. 269



POLYPOGON Desf.

Polypogon monspeliensis (L.) Desf.

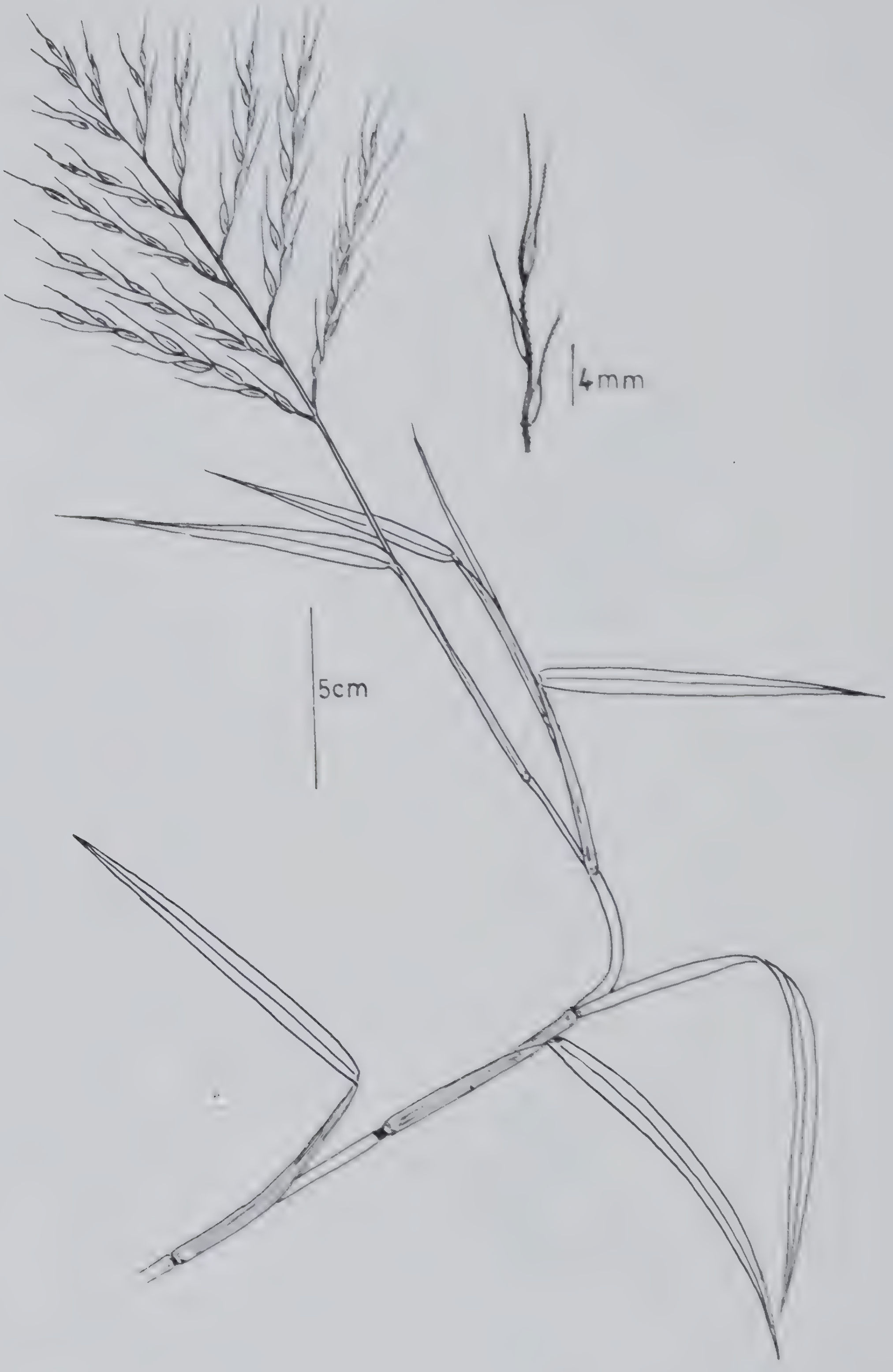
Local name : Kayvaye

Characteristics : A tufted, annual grass, 10 to 60 cm high. Leaves up to 10 cm long, ovate-lanceolate, scabrous on margin. Inflorescence a cylindrical, contracted panicle of silky racemes. Spikelets about 2 mm long; lemma with silky awns.

Habitat : Common along the margin of aquatic area and along roadsides. Zonation of this grass can be seen along the margin of aquatic areas.

Fl. & Fr. : July to March.

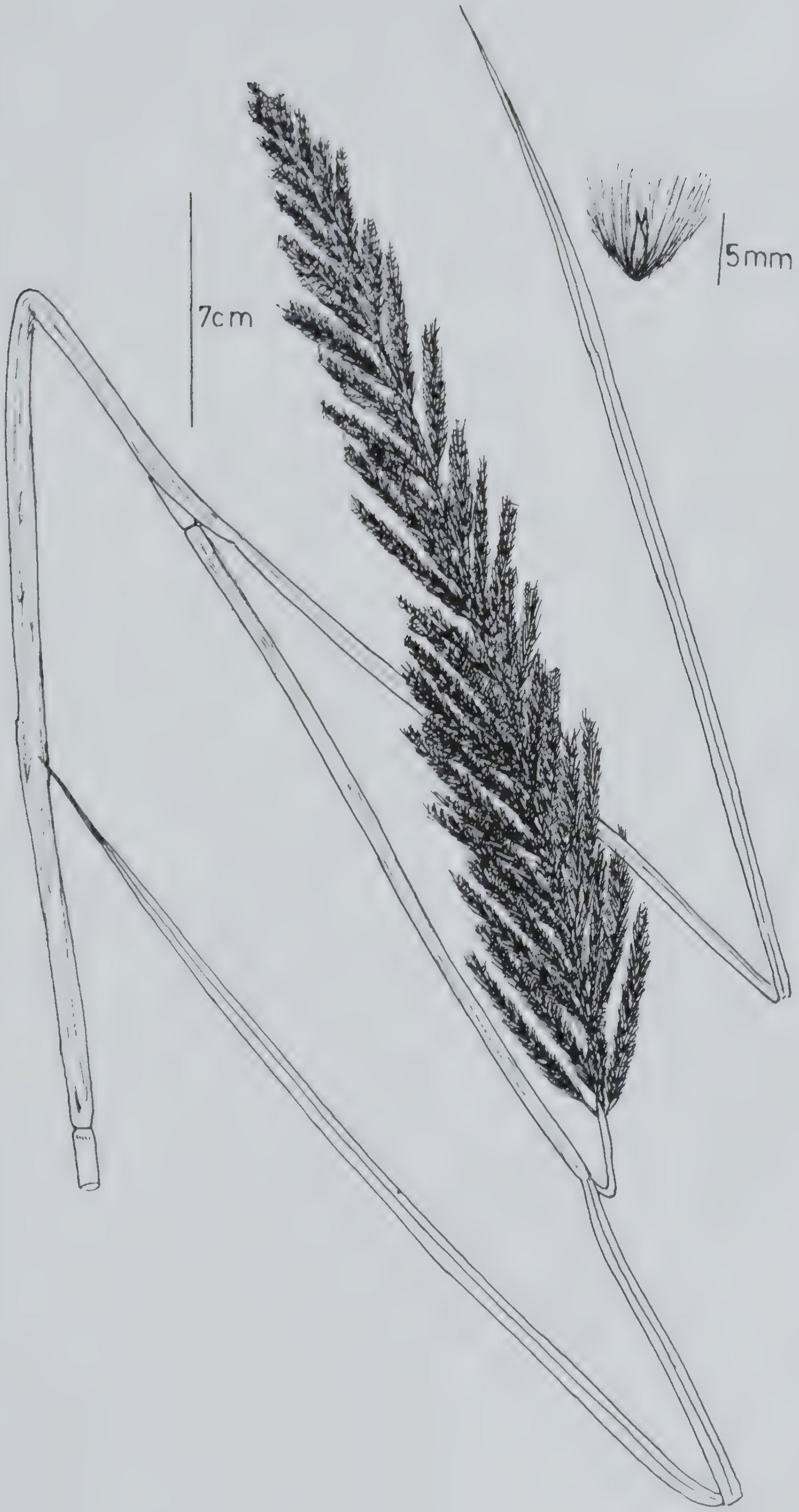
Reference : FBI. 7:245; FD. 401; FID. 427; FNER. 483; FTD. 233; FBR. 278



PSEUDORAPHIS Griff.

Pseudoraphis spinescens (R. Br.) Vickery

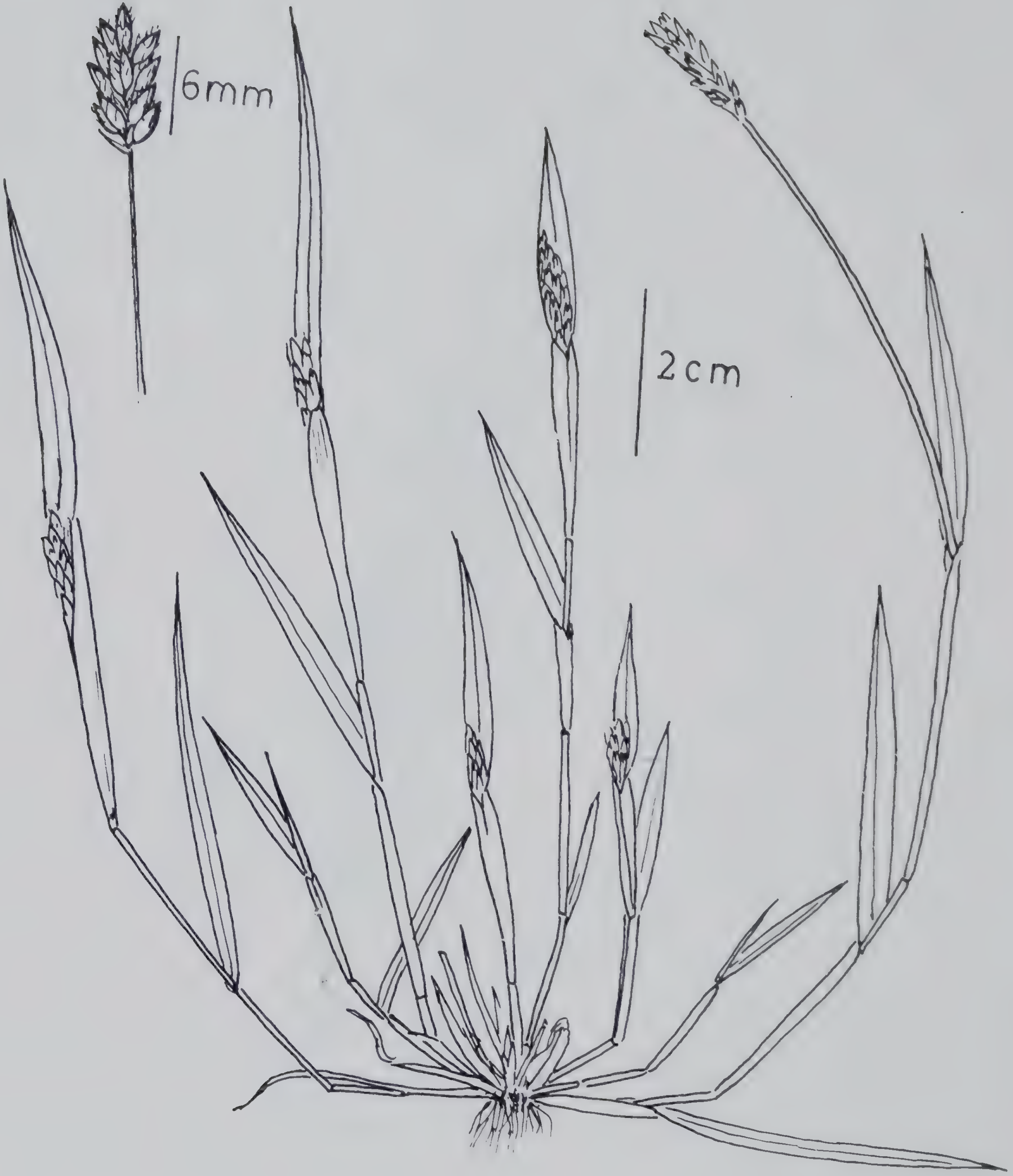
Synonym	:	*Panicum spinescens* R. Br.
Characteristics	:	A perennial, aquatic grass. Stem up to 120 cm long, branching. Leaves 4 to 10 cm long, scabrous. Ligule irregularly split. Inflorescence a spreading panicle, 8 to 12 cm long. Spikelets linear-lanceolate, bristly.
Habitat	:	Moist soil to shallow water areas.
Fl. & Fr.	:	August to January.
Reference	:	FBI. 7:62; GM. 176



SACCHARUM L.

Saccharum spontaneum L.

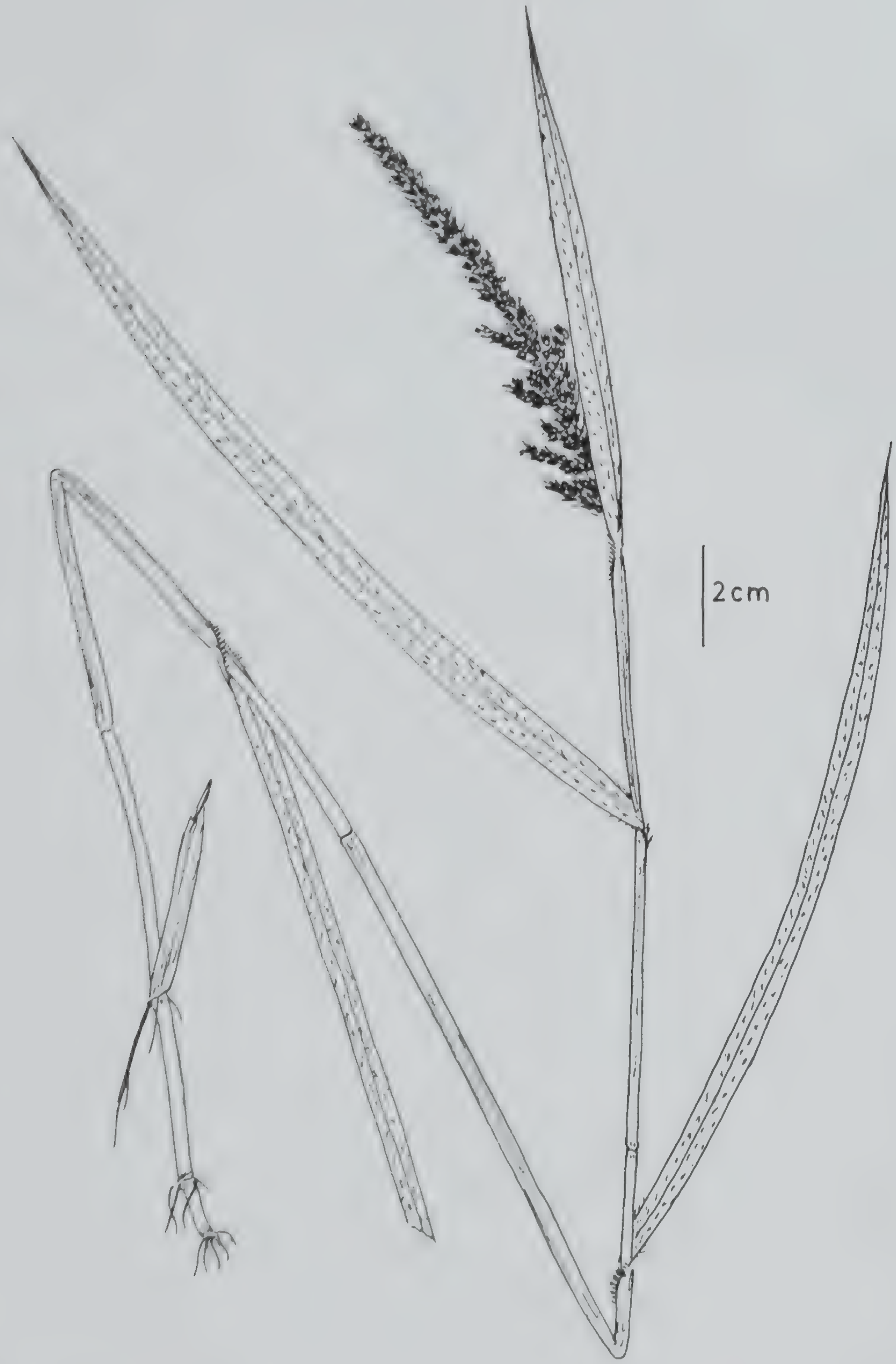
Local name	:	Kas
Characteristics	:	A tall, densely tufted, perennial grass with stout stem. Leaves with a white midrib and scabrous margin. Inflorescence a silky panicle, up to 45 cm long. Spikelets paired, one sessile and the other pedicellate.
Habitat	:	Found near water area; common along the dykes.
Fl. & Fr.	:	September to January.
Reference	:	FBI. 7:119; FD. 371; FID. 428; FNER. 486; FBR. 278



SACCIOLEPIS Nash.

Sacciolepis indica (L.) A. Chase

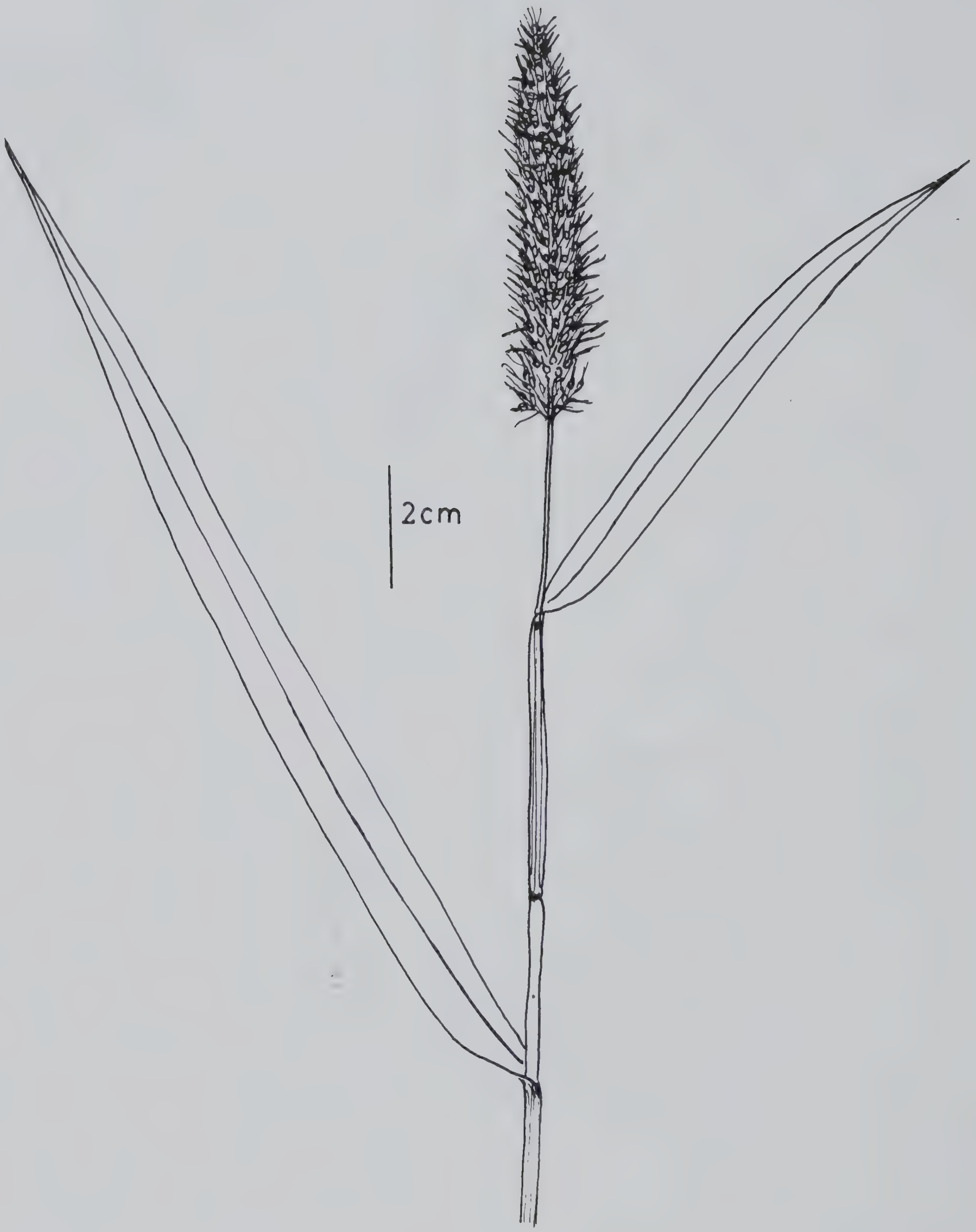
Synonym	:	*Panicum indicum* L.
Characteristics	:	A tufted, annual grass with decumbent or ascending stems, rooting at lower portions. Leaves up to 15 cm long. Ligule scarious. Inflorescence a cylindrical, contracted panicle. Spikelets about 3 mm long; upper glume hairy.
Habitat	:	Moist soil; not common in the park.
Fl. & Fr.	:	February to April.
Reference	:	FBI. 7:41; HFD. 639



SETARIA P. Beauv.

Setaria intermedia Roem. & Schult.

Synonym	:	*S. tomentosa* (Roxb.) Kunth
Characteristics	:	A tufted annual, up to 100 cm high. Stem glabrous, ascending, usually branching from the base. Leaves 5 to 20 cm long, 0.5 to 1.2 cm wide, sparsely hairy. Ligule a finely hairy rim. Inflorescence a spike-like, lobed panicle with scabrous rachis, up to 12 cm long. Spikelets solitary or in pairs, subtended by antrorsely barbed bristles.
Habitat	:	Along roadsides; not common.
Fl. & Fr.	:	August to December.
Reference	:	FBI. 7:79; FD. 379; FNER. 489; FBR. 280



Setaria verticillata (L.) P. Beauv.

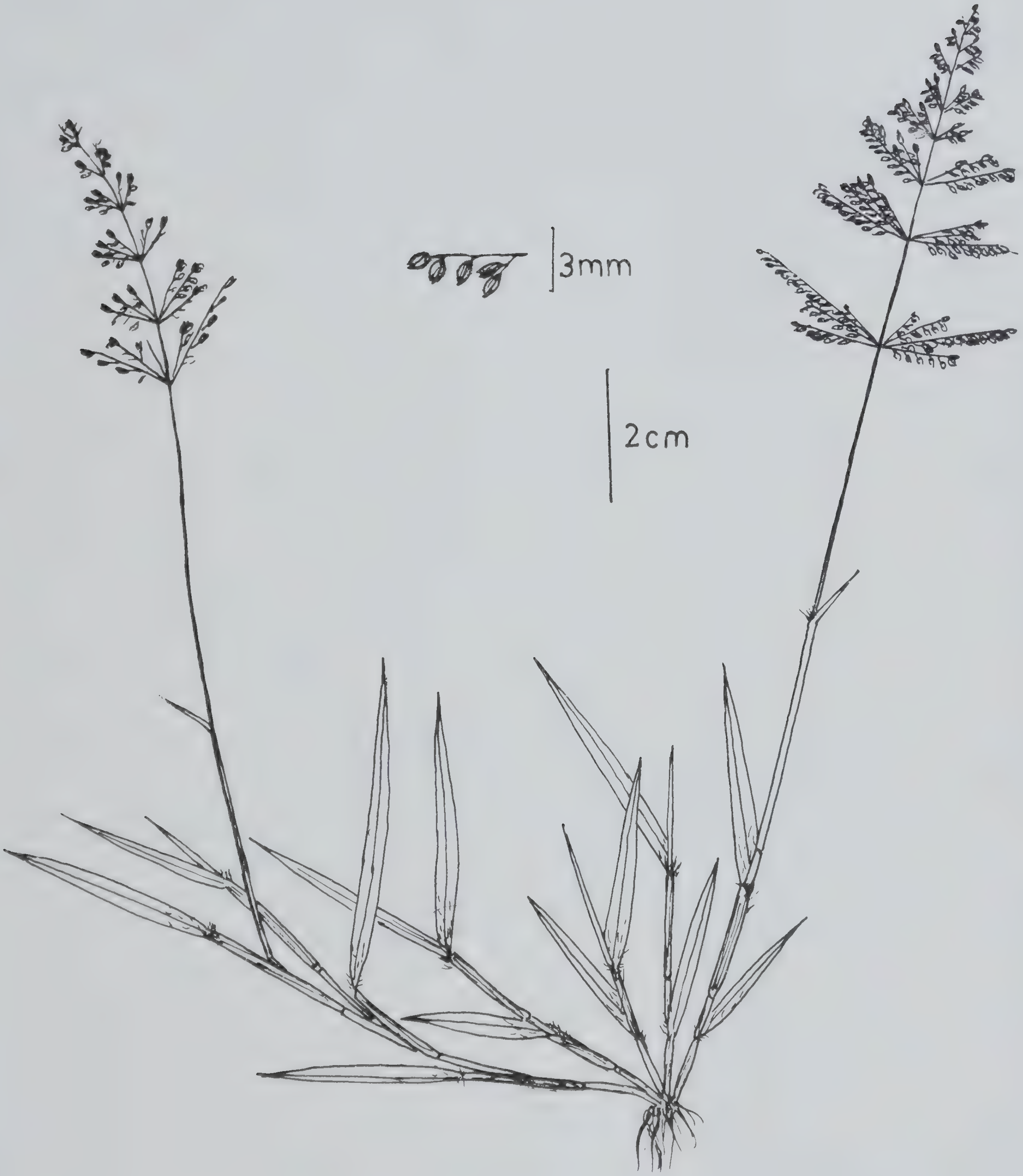
Local name : Chirchitta

Characteristics : An erect or ascending, annual grass, up to 100 cm high. Leaves up to 30 cm long, about 2 cm wide, linear-lanceolate, sparsely hairy. Inflorescence a spike-like, straight or curved, bristly, cylindrical panicle; bristles 0.5 to 1 cm long, retrorsely barbed.

Habitat : Scattered in moist shady areas.

Fl. & Fr. : August to December.

Reference : FBI. 7:80; FD. 378; GM. 185; FID. 430; FNER. 490



SPOROBOLUS R. Br.

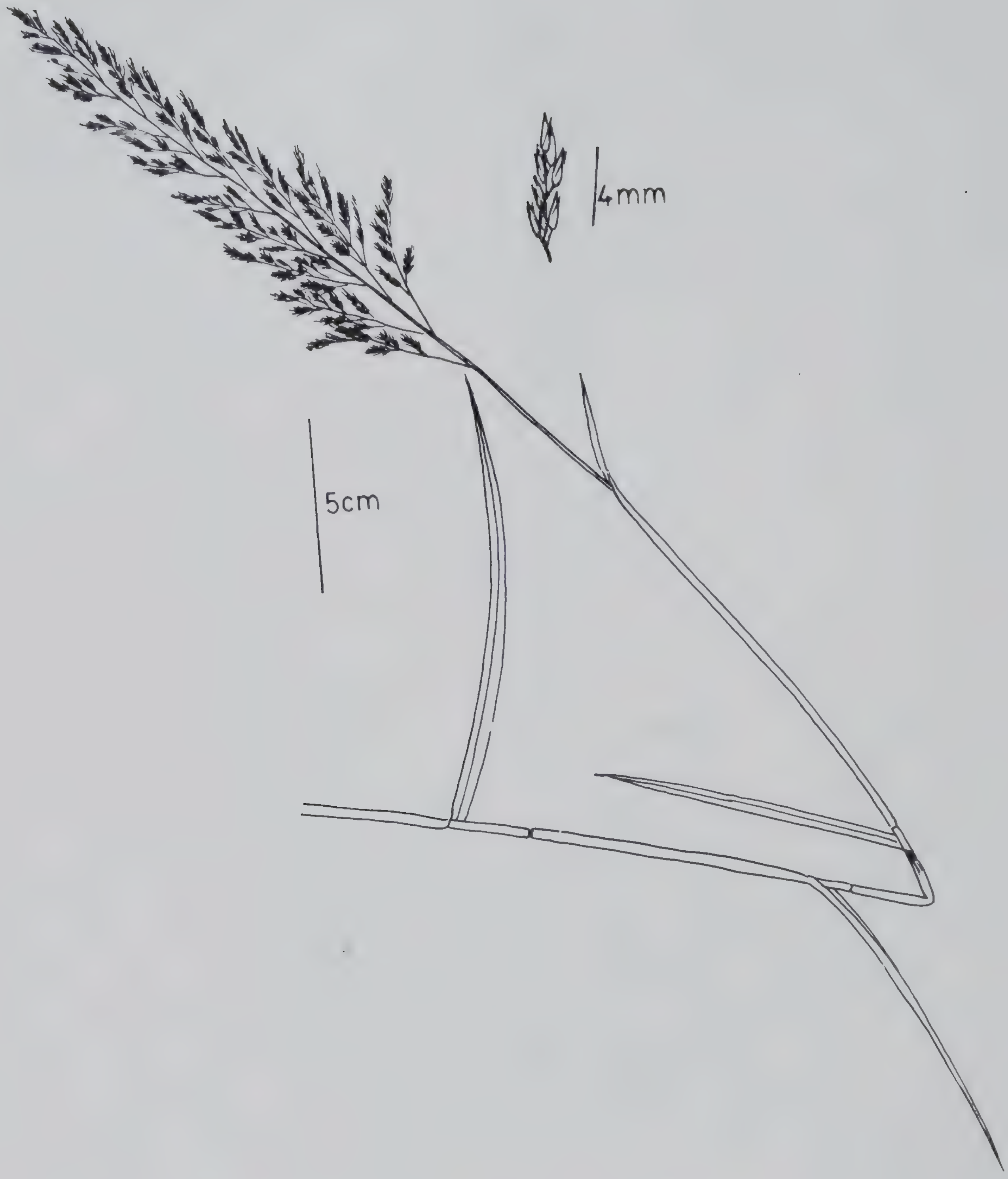
Sporobolus coromandelianus (Retz.) Kunth

Characteristics : A densely tufted, erect, annual grass, up to 30 cm high. Leaves 3 to 10 cm long, 3 to 5 mm wide, linear-lanceolate, sparsely hairy; margin scabrous. Inflorescence a diffuse, pyramid-shaped panicle.

Habitat : Moist soil; common after rainy season.

Fl. & Fr. : July to December.

Reference : FBI. 7:252; FD. 404; FID. 432; FNER. 492



Sporobolus helvolus (Trin.) Th. Dur. & Schinz

Synonym : *S. glaucifolius* Hochst. ex Steud.

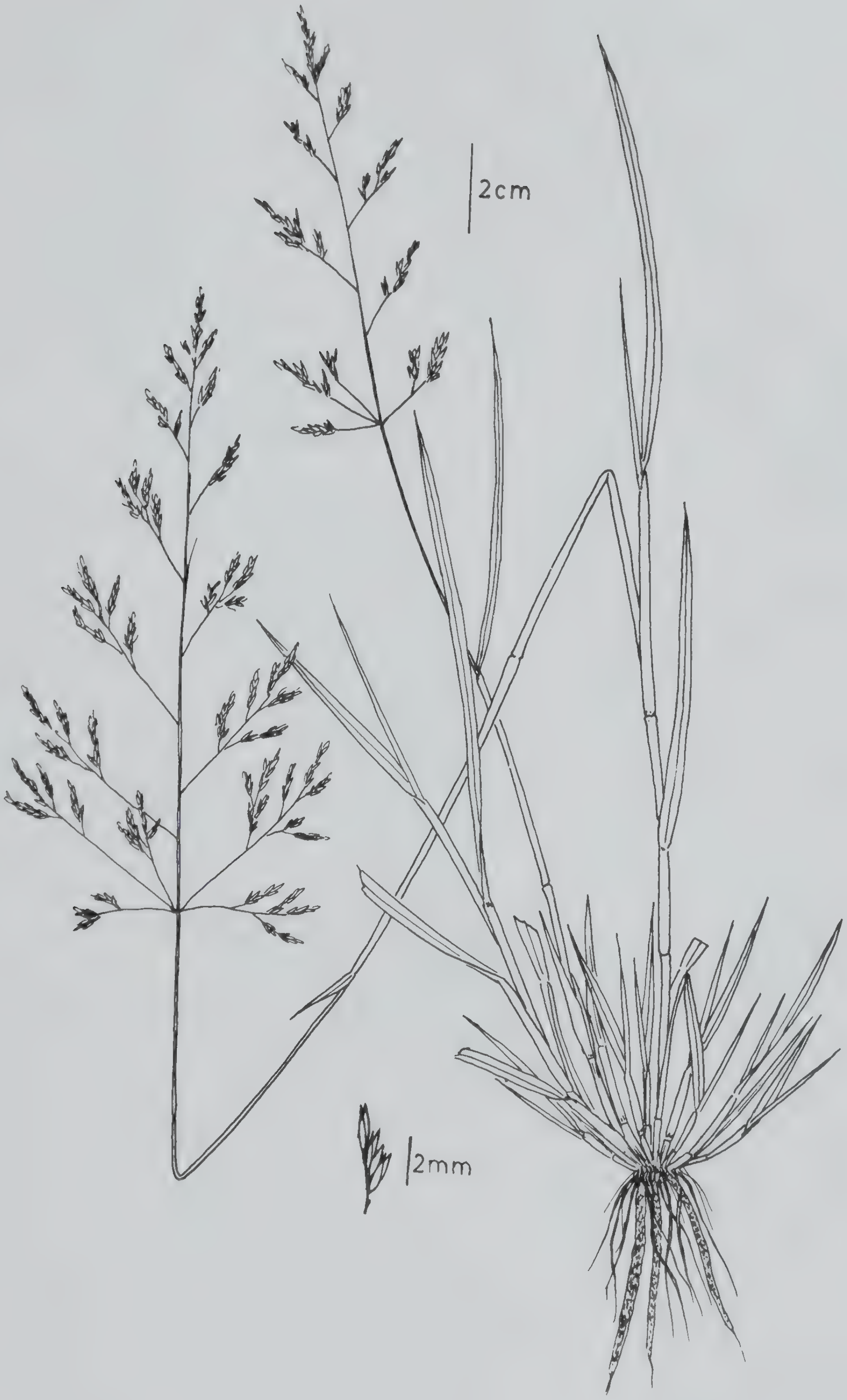
Local name : Khencha

Characteristics : A rhizomatous, creeping, perennial grass. Leaves 4 to 12 cm long, about 3 mm wide, glabrous or sparsely hairy. Inflorescence a contracted panicle, up to 15 cm long. Spikelets about 2 mm long.

Habitat : Common in moist soil and shallow water areas; also found in open grasslands.

Fl. & Fr. : July to December.

Reference : FBI. 7:250; FID. 433; FTD. 236



Sporobolus ioclados (Nees ex Trin.) Nees

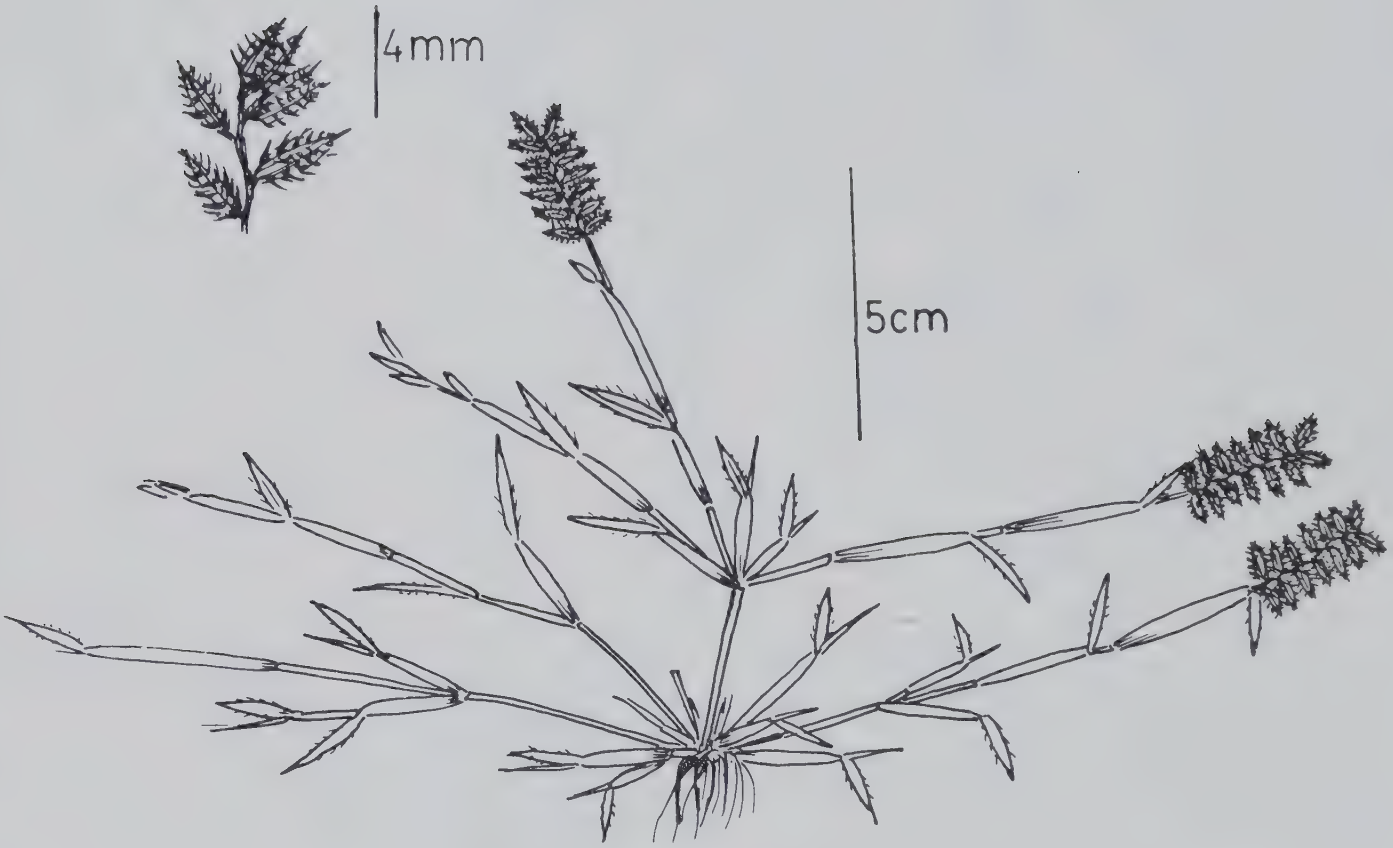
Synonym : *S. marginatus* Hochst.

Characteristics : An erect, perennial grass with woody base. Leaves 20 to 30 cm long. Ligule a fringe of white hairs. Inflorescence an open pyramid-shaped panicle, up to 20 cm long; with whorled, horizontal branches. Spikelets about 2 mm long.

Habitat : Common in saline sandy areas along the roadside.

Fl. & Fr. : September to December.

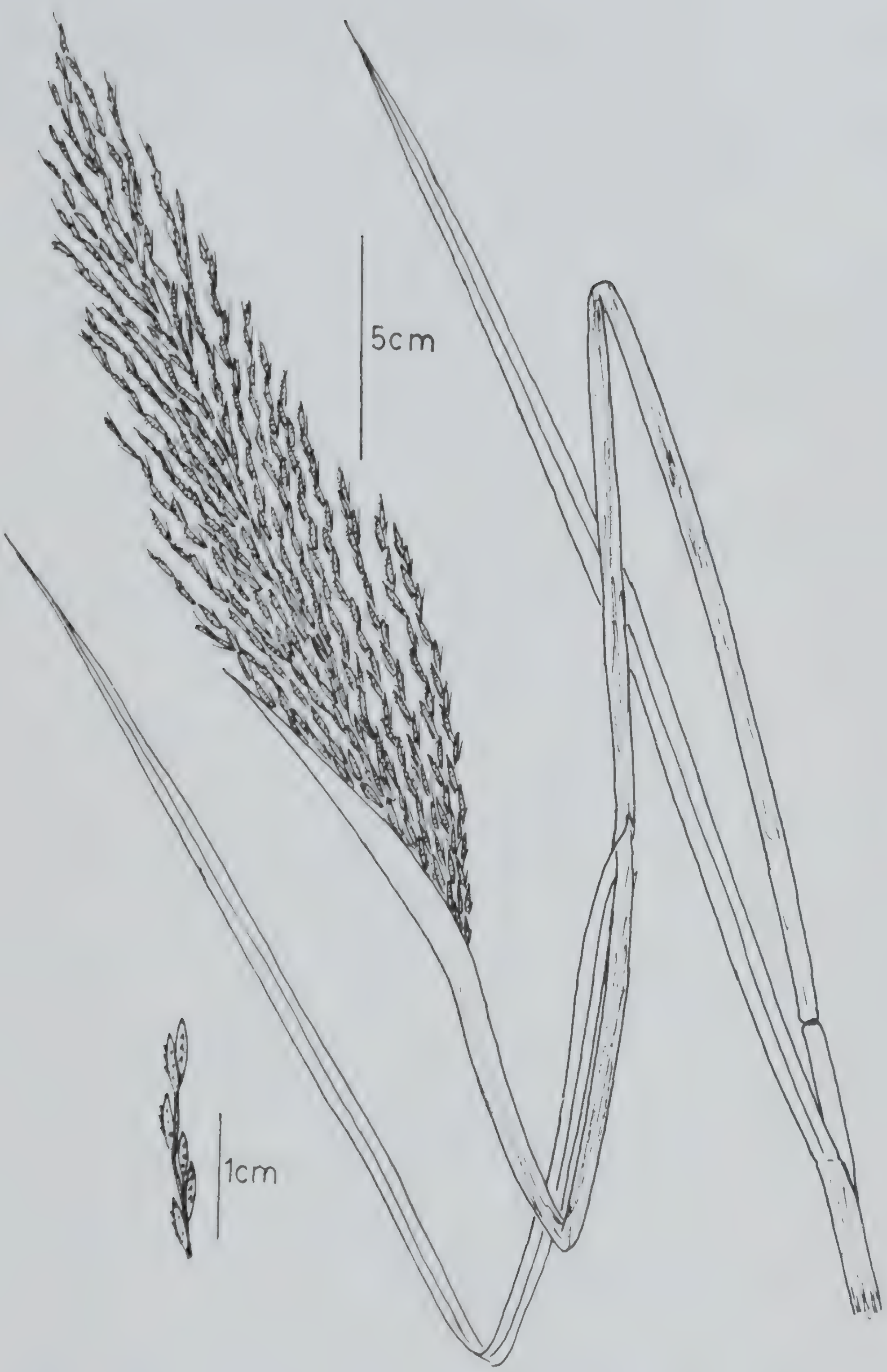
Reference : FD. 404; FID. 434; FNER. 493; FWP. 143:141



TRAGUS (Hall.) Scop.

Tragus roxburghii Panigrahi

Synonyms	:	*T. biflorus* (Roxb.) Schult. *T. racemosus* sensu Hook. f., non Scop.
Characteristics	:	A tufted, prostrate or ascending grass. Leaves 1 to 4 cm long, 2 to 4 mm wide, linear-lanceolate, glaucous, ciliate on margin. Inflorescence a terminal, spike-like raceme, 2 to 5 cm long. Spikelets about 3 mm long, sessile, paired but appear as a single spikelet. Grains linear-oblong, pale brown.
Habitat	:	Moist sandy soil; common after rainy season.
Fl. & Fr.	:	July to November.
Reference	:	FBI. 7:97; FD. 380; FID. 436; FNER. 495; FTD. 238



VETIVERIA Bory

Vetiveria zizanioides (L.) Nash

Local name : Gandar

Characteristics : A tall, tufted, perennial grass with aromatic root stocks. Stem up to 200 cm high. Leaves 30 to 90 cm long, erect, rigid. Ligule a minute, scarious rim. Inflorescence an oblong, contracted panicle, up to 30 cm long. Racemes up to 5 cm long, arranged in whorls of 4 to 10. Spikelets paired, one sessile and the other pedicellate, yellowish to dark brown.

Habitat : Dry sandy soil; very common in the grasslands of Koladhar area.

Fl. & Fr. : July to December.

Reference : FBI. 7:186; FD. 403; FID. 438; FTD. 239

GLOSSARY OF TAXONOMIC TERMS

Achene	A small,1-seeded indehiscent fruit, derived from a superior, 1-locular ovary.
Acuminate	Tapering to a protracted point.
Acute	Margins converging to a point.
Amplexicaule	With a base completely clasping the stem.
Androgynophore	A stalk bearing the stamens and pistil above the sepals and petals
Antrorse	Bent or turned forward or upward.
Apiculate	Apex with a small, stiff, sharp point.
Appressed	Closely and flatly pressed against.
Auriculate	With an ear-shaped projection or appendage at the base.
Axillary	In the axil.
Bisexual	Having both the sexes in a flower.
Bract	A small or scale-like reduced leaf, associated with an inflorescence or a flower; some times enlarged and leafy.
Bracteole	A secondary bract.
Calyx	The outermost floral envelope, composed of free or united sepals, usually green, rarely petal-like.
Capitate	Aggregated into a head-like cluster.
Cauline	Attached to a distinct, elongated axis or stem.
Cladode	A leaf-like branch of the stem.
Clavate	A long body gradually becoming thick towards the top; club-shaped.
Cleistogamous	Self-fertilized flowers which remain closed.
Corolla	Whorl of floral envelop formed by free or united petals, usually membranous and coloured.
Cordate	Heart-shaped or the basal portion with a sinus and two rounded lobes.
Corymb	A flat-topped inflorescence with indeterminate growth and the outer flowers opening first.
Crenulate	Shallowly round-toothed.
Culm	Stem of grass which is usually hollow except at the nodes.
Cuneate	Wedge-shaped or narrowed to the base.
Cupular	With a cup-like structure at the base.
Cyme	A broad flower cluster with determinate growth and central flowers opening first.
Decumbent	Bent downwards but with the tip pointing upwards.
Deltoid	Triangular.
Dichotomous	Forked.
Digitate	Branched or lobed in a palm-like fashion.
Dioecious	With male and female flowers on different plants.
Disk flowers	The tubular flowers in the centre of a head inflorescence in Compositae family.

Epicalyx	—	Extra segments of the calyx, not homologous with sepals.
Fascicle	—	A condensed or close cluster of flowers in which rachis absent or very short.
Filiform	—	Very slender or thread-like.
Fusiform	—	Narrowed to both ends and swollen in the middle; spindle-shaped.
Glabrous	—	Without hairs.
Glaucous	—	A layer of greyish or whitish substance as a covering.
Glume	—	A chaff-like bract found in grass spikelets.
Gynophore	—	An elongated axis bearing the pistil.
Halophyte	—	A salt tolerant plant.
Hastate	—	Shape of an arrow-head with basal lobes pointed or narrow.
Hilum	—	The scar in a seed which is the point of attachment.
Hispid	—	With stiff or bristle-like hairs.
Imbricate	—	Overlapping as tiles of a roof.
Internode	—	Part of a stem between two nodes.
Involucre	—	One or more whorls of bracts just below a flower or an inflorescence.
Lanceolate	—	Much longer than broad, tapering towards the apex.
Leaf-sheath	—	Basal part of a leaf, covering the stem fully or partly.
Lenticular	—	Lens shaped.
Ligule	—	A projection from the top of the leaf-sheath in grasses and other plants.
Lyrate	—	Pinnately divided, but with an enlarged terminal lobe and smaller lower nodes.
Monadelphous	—	Stamens united into a group by fusion of their filaments.
Mucronate	—	Terminated by a short spiny tip.
Muricate	—	Rough appearance due to the presence of minute sharp projections.
Node	—	Joint of a stem where leaves are born.
Nutlet	—	A small nut.
Oblanceolate	—	Broader at the distal part than the middle and tapering towards the base.
Obovoid	—	Reverse of ovate, terminal half broader than the base.
Obtuse	—	Rounded.
Ochrea	—	Connate stipules forming a sheath around the nodal portion of the stem.
Orbicular	—	Circular or disc-shaped.
Ovate	—	Egg-shaped, broader below the middle.
Palmate	—	Branched, divided or lobed in a palm-like fashion.
Panicle	—	A branched racemose inflorescence with indeterminate growth.
Pappus	—	Modified calyx of Compositae members, being plumose or bristle-like, borne on the ovary; persistent in fruit.
Pedicel	—	Stalk of a single flower.
Peduncle	—	Stalk of a flower cluster.

Peltate	—	Stalk of the leaf attached somewhere in the middle of the blade not at its margin.
Perianth	—	A collective term for the two outer floral whorls; sometimes not differentiated into calyx and corolla.
Pericarp	—	The fruit wall.
Petiole	—	Leaf-stalk.
Pinnate	—	Leaflets of a compound leaf arranged on either side of the rachis (like a feather).
Pinnatifid	—	Cleft or parted in a pinnate fashion.
Plumose	—	With fine hairs or feathery.
Prickle	—	Spiny appendages borne on the bark or epidermis.
Procumbent	—	Branches lying on the ground, but not rooting.
Punctate	—	With minute dots or depressions.
Quadrangular	—	With 4 angles or corners.
Rachis	—	Axis bearing flowers or leaflets.
Ray flower	—	The outer flowers of some head inflorescence in Compositae family, which have a strap-like part of corolla.
Reniform	—	Kidney-shaped.
Retrorse	—	Bent or turned over backward or downward.
Rhizome	—	Underground stem or rootstock with nodes, buds or scale leaves.
Rhomboid	—	Diamond-shaped.
Rosulate	—	In a rosette i.e. leaves radiating from the centre and close to the earth.
Rugose	—	Wrinkled.
Sagittate	—	Like an arrow-head; triangular with acute lobes.
Samara	—	An indehiscent winged fruit.
Scabrid	—	Rough to touch.
Scarious	—	Dry, membranous leaf-like parts which are not green.
Schizocarp	—	A dry dehiscent fruit which splits into 2 halves.
Septate	—	Divided by partitions.
Serrulate	—	Minutely saw-toothed.
Sessile	—	Stalkless.
Spathulate	—	Spoon-shaped.
Spike	—	An elongated, usually unbranched inflorescence of indefinite growth with sessile flowers.
Spikelet	—	A spicate part of an inflorescence; floral unit of a grass inflorescence.
Spine	—	A strong, sharp-pointed organ arising from the wood of the stem.
Stellate	—	Star-like.
Stipe	—	Stalk of a pistil or other organs, when axile in origin.
Stipule	—	The basal appendage of a petiole.
Stolon	—	A horizontal branch at or below the ground level, rooting at nodes and there producing a new plant.

Strigose	—	With sharp, stiff, straight hairs.
Tepal	—	A unit of the perianth not clearly differentiated into calyx and corolla.
Terete	—	Cylindrical.
Tomentose	—	Matted with soft wool-like hairs,
Turion	—	A young shoot or sucker which gives rise to a new plant.
Umbel	—	An inflorescence of indeterminate growth whose pedicels and peduncles arise from a common point.
Unisexual	—	With one sex in a flower, i.e., either male or female.
Utricle	—	A bladdery, one seeded indehiscent fruit.

Local names of plants with corresponding botanical names

Local name		**Botanical name**
Aak	—	*Calotropis procera*
Akri	—	*Vicia sativa*
Amerbel	—	*Cuscuta reflexa*
Ancha	—	*Paspalum distichum*
Apho	—	*Ehretia aspera*
Askand	—	*Withania somnifera*
Babul	—	*Acacia nilotica*
Bar	—	*Ficus benghalensis*
Barbatta	—	*Ceropegia bulbosa* var. *lushii*
Barna	—	*Crataeva magna*
Barphali	—	*Cassia fistula*
Baru-sarpatho	—	*Erianthus ravennae*
Bathua	—	*Chenopodium album*
Belodo	—	*Tinospora cordifolia*
Ber	—	*Ziziphus mauritiana*
Bilaiti aak	—	*Ipomoea carnea* subsp. *fistulosa*
Bilayati gokhru	—	*Pedalium murex*
Bothal burus	—	*Callistemon lanceolatus*
Bun	—	*Gossypium arboreum*
Chamkili	—	*Celosia argentea*
Chatakni-phali	—	*Ruellia tuberosa*
Chhui-mui	—	*Neptunia oleracea*
Chin-mitti	—	*Physalis minima*
Chin-mitti	—	*Solanum nigrum*
Chir-chitti	—	*Salsola baryosma*
Chirchita	—	*Setaria verticillata*
Chirchita	—	*Pupalia lappacea*
Chirchita	—	*Xanthium strumarium*
Choti Kaye	—	*Lemna perpusilla*
Choukra	—	*Prosopis cineraria*
Cucur bhangra	—	*Eclipta prostrata*
Dab	—	*Desmostachya bipinnata*
Desi babul	—	*Acacia nilotica*
Dhadon	—	*Sesbania bispinosa*
Dhathura	—	*Datura innoxia*
Dikhni babul	—	*Prosopis juliflora*
Dungar	—	*Salvadora oleoides*
Gander	—	*Vetiveria zizanioides*
Gandhel	—	*Iseilema laxum*

Local names of plants with corresponding botanical names

Local name		Botanical name
Ganja	—	*Cannabis sativa*
Gerga ghas	—	*Dichanthium annulatum*
Ghiabathi	—	*Ipomoea pes-tigridis*
Ghur-dubh	—	*Cynodon dactylon*
Gobi	—	*Launaea procumbens*
Gokhru	—	*Tribulus terrestris*
Gular	—	*Ficus racemosa*
Gulkakad	—	*Coccinia grandis*
Gulmohar	—	*Delonix regia*
Heese	—	*Capparis sepiaria*
Hingota	—	*Balanites aegyptiaca*
Imli	—	*Tamarindus indica*
Inni	—	*Clerodendrum phlomidis*
Jal kumni	—	*Eichhornia crassepes*
Jamun	—	*Syzygium cumini*
Jangal jalebi	—	*Maerua oblongifolia*
Jangal jalebi	—	*Pithecellobium dulce*
Jangli bhindi	—	*Abelmoschus ficulneus*
Jangli chaval	—	*Oryza rufipogon*
Jangli palak	—	*Rumex dentatus*
Jangli tamaku	—	*Nicotiana plumbaginifolia*
Jangli torai	—	*Luffa acutangula* var. *amara*
Javasa	—	*Alhagi pseudalhagi*
Jhar ber	—	*Ziziphus numularia*
Jhau	—	*Tamarix aphylla*
Kadam	—	*Mitragyna parvifolia*
Kali makoi	—	*Solanum nigrum*
Kamal	—	*Nymphaea nouchali & N. pubescens*
Kana	—	*Tonningia axillaris*
Kana	—	*Commelina benghalensis*
Kana	—	*Commelina forskalaei*
Kandevali santi	—	*Alternanthera pungens*
Kara bhangra	—	*Eclipta prostrata*
Karai banyar	—	*Luffa echinata*
Karanj	—	*Pongamia pinnata*
Karel	—	*Capparis decidua*
Kas	—	*Sachharum spontaneum*
Kaye	—	*Spirodela polyriza*
Kayvaye	—	*Polypogon monspeliensis*
Khadyar	—	*Salvadora persica*

Local names of plants with corresponding botanical names

Local name		Botanical name
Khajur	—	*Phoenix sylvestris*
Kharthua	—	*Chenopodium murale*
Khencha	—	*Sporobolus helvolus*
Lásua	—	*Amaranthus viridis*
Lásua	—	*Digera muricata*
Leltena	—	*Lantana camara* var. *aculeata*
Makhi	—	*Kirganelia reticulata*
Mehndi	—	*Lawsonia inermis*
Morára	—	*Melilotus indica*
Motha	—	*Cyperus rotundus*
Motha	—	*Scirpus tuberosus*
Motha - patera	—	*Cyperus alopecuroides*
Mothi	—	*Cyperus difformis*
Nag-phani	—	*Opuntia elatior*
Nari	—	*Ipomoea aquatica*
Neem	—	*Azadirachta indica*
Neem chameli	—	*Millingtonia hortensis*
Nisoda	—	*Cordia dichotoma*
Onga	—	*Achyranthes aspera* var. *argentea*
Onga	—	*Achyranthes aspera* var. *porphyristachya*
Oont katera	—	*Hygrophila auriculata*
Pamar	—	*Cassia tora*
Papri	—	*Holoptelea integrifolia*
Parkamsonia	—	*Parkinsonia aculeata*
Parus pipal	—	*Thespesia populnea*
Pasendu	—	*Diospyros cordifolia*
Patera	—	*Typha angustata*
Phal kateri	—	*Solanum surattense*
Phatairo	—	*Paspalidium punctatum*
Pia basoro	—	*Adhatoda zeylanica*
Pilu	—	*Salvadora oleoides*
Pipal	—	*Ficus religiosa*
Pola	—	*Eleocharis dulcis*
Poly	—	*Eleocharis palustris*
Raemga	—	*Acacia leucophloea*
Rathi	—	*Abrus precatorius*
Rukhda	—	*Eichhornia crassipes*
Rumia karela	—	*Momordica charantia* var. *muricata*
Sama	—	*Echinochloa colonum*

Local names of plants with corresponding botanical names

Local name		Botanical name
Sama	—	*Echinochloa crusgalli*
Santi	—	*Trianthema portulacastrum*
Satavar	—	*Asparagus racemosus*
Sattar	—	*Lathyrus aphaca*
Satyanasi	—	*Argemone mexicana* & *A. ochroleuca*
Shah-tut	—	*Morus alba*
Singhara	—	*Trapa natans* var. *bispinosa*
Sirs	—	*Albizia lebbeck*
Sisam	—	*Dalbergia sissoo*
Tamatar	—	*Lycopersicon esculentum*

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